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SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

Contents for July 1, 1914

EDITORIAL	485	Average of 200 lbs. from 800 Colonies	506
Bees, Five-banded	485	Honey from Red Clover	508
Guarantee Clause Postponed	485	Smoker, Self-extinguishing	509
Parcel Post, Limitations of	485	Introduction by Smoke Plan	510
Imbedding Wires in Foundation	486	English Season Early	512
Field-day Meet at Medina	486	Cotton as a Honey-yielder	513
Honey Prospects for 1914	486	Requeening without Dequeening	514
Net-weight Law on Comb Honey	487	Two Fences each Side of Super	515
STRAY STRAWS	489	Wasps on Comb-honey Super	515
BEEKEEPING AMONG THE ROCKIES	490	HEADS OF GRAIN	516
Apicultural Education	490	Alfalfa in Kansas	516
BEEKEEPING IN CALIFORNIA	491	Ventilation in a Bottom-board	516
Queens reared out of Season	491	Queens, Catching Easily	516
Queens, how to Judge	491	Horizontal Queen-cell Production	516
Poison from Stings	491	Water-can for Cages	517
NOTES FROM CANADA	492	Mortality of Queens in New Zealand	517
Dandelion as a Honey-yielder	492	Smoke, Proper Use of	517
Honey at Hotels	492	Swarming Bees Cross	518
Combs, Full-drawn	492	Foul Brood in Kentucky	518
Schools for Beekeepers	492	Super, Moving, to let Bees Escape	518
CONVERSATIONS WITH DOOLITTLE	494	Robbers Spread Foul Brood	518
Profits of Beekeeping	494	Brood-comb Clogged with Honey	518
GENERAL CORRESPONDENCE	495	Honey, Cheap, in Jamaica	518
Combs, Value of Good	495	OUR HOMES	519
Breeding Larger Bees	498	Northfield School	523
Power Extracting-outfit	500	HIGH-PRESSURE GARDENING	524
Bees and Horticulture	504	HEALTH NOTES	525
Australian Hustler	506	TEMPERANCE	526

Honey reports continued from page 2.

DENVER.—We have no more old stock of comb honey to offer, and are selling extracted honey in a jobbing way at the following prices: White extracted, 8; light amber, 7. We pay 32 cts. per pound cash and 34 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, June 17. FRANK RAUCHFUSS, Mgr.

LIVERPOOL.—The market for Chilian honey is slow; 25 barrels arrived per SS. Ville du Havre. Various piles sold at \$5.04 per cwt., ex quay, rather than store stocks being heavy. The Chilian beeswax market is quiet; 10 sacks have been sold at \$36.42 to \$42.48 per ton. Fifty-five packages have arrived per SS. Ville du Havre and Panama.

Liverpool, June 10. TAYLOR & CO.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, June 18. WALTER S. POUDER.

KANSAS CITY.—Our market is still bare of comb honey, except what is left in retailers' hands. Plenty of extracted honey, but the weather has been so warm there has been very little demand. We think new honey will sell about as follows: No. 1 white comb, 24-section cases, \$3.25 to \$3.50; No. 2 ditto, \$2.75 to \$3.00; No. 1 amber ditto, \$3.25; No. 2 amber ditto, \$2.75 to \$3.00; extracted white, per lb., 7½ to 8; amber, 7 to 7½; No. 1 beeswax, 30; No. 2, 25. C. C. CLEMONS PRODUCE CO.

Kansas City, June 15.

ZANESVILLE.—The rather unsatisfactory industrial conditions are evidently affecting the honey market, as the demand is abnormally slack. Prices remain about as previously quoted. Best grades of white-clover comb sell to the retail grocery trade at 18 to 19, jobbing prices being about 2 cts. lower. Western honey, or clover honey with traces of granulation, would be subject to some concession from these prices. Extracted in 60-lb. cans is quoted: Clover, 9 to 10; orange, 10 to 11; light amber, 7 to 8. Producers receive for beeswax 32 to 33 cash, 34 to 35 in trade.

Zanesville, June 19. E. W. PEIRCE.

ST. LOUIS.—Our honey market is very quiet and narrow, dealers buying just enough to have some on hand. Some Southern new extracted honey has arrived in this market, with quotations merely nominal. We quote Southern extracted strained bright-amber honey, in barrels, 5½ to 6½; in cans, 6 to 7; dark, ½ to 1 ct. per lb. less. Fancy clover in combs, 14 to 15; light amber, 12 to 14; broken and leaky, 7 to 8; by the case, fancy clover, \$3.00 to \$3.25; light amber, \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax scarce, and wanted; quoted, prime, 35½ cts. per lb.; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, June 17.

NEW YORK.—There is some demand for new-crop white comb honey, which is selling at from 14 to 16, according to quality. Off grades are not wanted. We carried over several lots from last year, for which it seems almost impossible to find buyers at any reasonable price. As to extracted, the market is decidedly dull; new crop is beginning to arrive from the South, and off grades find slow sale at from 55 to 60 cts. per gallon, while fancy grades are in better demand, and are selling at around 75 to 85 cts. per gallon, while fancy grades are in better demand, and are selling at around 75 to 85 cts. per gallon, according to quality. West Indian, especially Porto Rican, is arriving right along, and finds only small sale at 55 to 57 cts. per gallon. Beeswax is steady and firm at from 34 to 36, according to quality.

New York, June 17. HILDRETH & SEGELKEN.

Deposit your Savings with

The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

A.T.SPLITZER
PRESIDENT

E.R.ROOT
VICE-PRESIDENT

E.B.SPLITZER
CASHIER

ASSETS OVER ONE MILLION DOLLARS

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application.

Fifty-eight pages; one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

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THE A. I. ROOT COMPANY, MEDINA, OHIO

FAMOUS QUEENS DIRECT FROM ITALY!

Bees more beautiful, more generous, more industrious; the best honey-gatherers. PRIZES: VI Swiss Agricultural Exposition, Berne, 1895; Swiss National Exposition, Geneva, 1896; Beekeeping Exhibition, Liege, Belgium, 1896; Beekeeping Exhibition, Frankfort, O. M. (Germany), 1907; Convention of the German, Austrian, and Hungarian Beekeepers, August, 1907; Universal Exposition, St. Louis, Mo., U. S. A., 1904;

 the HIGHEST AWARD. Extra breeding queens, \$3.00; Selected, \$2.00; Fertilized, \$1.50; lower prices per dozen or for more queens. Safe arrival guaranteed. Write ANTHONY BIAGGI, PEDEVILLA, near Bellinzona, ITALY

Please in writing mention "Gleanings in Bee Culture."

INCREASE YOUR HONEY CROP!

by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested, 1, \$1.00; 6, \$5.00. Tested, 1, \$1.25; 6, \$6.00. Breeders, \$10 each. Every queen guaranteed.

FRED LEININGER & SON, Delphos, Ohio

Beekeepers, Attention

If you have any extracted or comb honey to offer send us samples of quality, state quantities and how packed. We pay the highest market price for same. We are paying 34 cts. cash for nice, clean, bright yellow beeswax.

CHAS. ISRAEL & BROS., 486-490 Canal St., New York

The ABC of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873.

CIRCULATION 35,000

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

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Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

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Cash discount if paid in ten days, 2 per cent.

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No medical or objectionable advertising accepted.

Column width, 2 $\frac{5}{8}$ inches.

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Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

Index to Advertisements

AUTOS, BICYCLES			
Mead Co.	13	Biaggi, A.	5
BANKING BY MAIL		Davis, B. G.	14
Savings Deposit Bank	5	Laws, W. H.	15
BEE SUPPLIES		Leininger, F.	5
Blanke Mfg. Co.	1	Holopeter, J. B.	14
Cull & Williams	11	Laws, W. H.	15
Clemons Bee Supply Co.	1	Penn Co.	14
Bondonneau, E.	8	Miller, I. F.	15
Falconer Mfg. Co.	1	Moore, J. P.	15
Griggs, S. J.	11	Mott, E. E.	15
Hunt, M. H.	11	Nichols, E. M.	15
Jepson, H. H.	11	Lockhart, F. A.	15
Lewis, G. B.	12	Latshaw Honey Co.	15
Nebel, J. & Son	11	Quirin, H. G.	14
Peirce, E. W.	8	Short, H. C.	15
Pouder, W. S.	10	Steele, G. M.	15
Root Co., Syracuse	9	Swarthmore Apiaries	15
Stringham, I. J.	11		
Superior Honey Co.	1	CLASSIFIED ADS.	
Thale, H. H.	7	Beekeepers' Directory	19
Toepperwein & Mayfield	22	Bees and Queens	17
Woodman, A. G. Co.	7	For Sale	17
BEES AND QUEENS		Help Wanted	19
Archdekin, J. F.	15	Honey and Wax for Sale	17
		Honey and Wax Wanted....	17
		Poultry	19
		PATENTS	
		Williamson, C. J.	11
		PUBLICATIONS	
		Florida Grower	1
		Bigelow, E. F.	8

**NEW BINGHAM
BEE SMOKER**

Patented



with a rubber cord in the top to fit around the hat, and the lower edge has the cord arrangement shown above, the two ends going around behind the body, and back in front to tie. This arrangement holds the veil down on the shoulders snugly, away from the neck, and permits the wearer to handle bees in his shirt sleeves with no chance of bees crawling up and under veil. With a hat of fair size brim to carry veil away from the face you are as secure from stings, movements as free and unrestricted, and as cool and comfortable as you would be at a summer resort.

All cotton, each, postpaid,	\$.50
Cotton with silk face, each, postpaid,	.60
Bee-hat, flexible rim, fits any head, postpaid,	.35
Extra silk face piece, postpaid,	.10
Long-sleeve bee-gloves	.35

Such men as R. F. Holtermann, J. E. Crane & Son, N. E. France, and many others all over the U. S. A., order a supply of these veils each season, year after year.

A. G. Woodman Company, Grand Rapids, Mich.



The Bingham Bee-smoker

nearly forty years on the market, and the standard in this and many foreign countries. The all-important tool of the most extensive honey-producers of the world. Such men as Mr. France and the Dadants use the Bingham. By co-operation Mr. Townsend uses six Smoke Engines. For sale at your dealers' or direct. Postage extra.

Smoke Engine, 4-inch stove; wt. each, 1 1/4 lb.	\$ 1.25
Doctor, 3 1/2-inch stove; weight each, 1 1/8 lbs.	.85
Two larger sizes in copper, extra	.50
Conqueror, 3-inch stove; weight each, 1 1/2 lb.	.75
Little Wonder, 2 1/2-inch stove; wt. each, 1 lb.	.50
Two largest sizes with hinged cover.	

**Woodman
Style
Veils**

Our veils contain 1 1/2 yards of the best material for the purpose—imported French tulle veiling. They are made

with a rubber cord in the top to fit around the hat, and the lower edge has the cord arrangement shown above, the two ends going around behind the body, and back in front to tie. This arrangement holds the veil down on the shoulders snugly, away from the neck, and permits the wearer to handle bees in his shirt sleeves with no chance of bees crawling up and under veil. With a hat of fair size brim to carry veil away from the face you are as secure from stings, movements as free and unrestricted, and as cool and comfortable as you would be at a summer resort.

All cotton, each, postpaid,	\$.50
Cotton with silk face, each, postpaid,	.60
Bee-hat, flexible rim, fits any head, postpaid,	.35
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Long-sleeve bee-gloves	.35

Such men as R. F. Holtermann, J. E. Crane & Son, N. E. France, and many others all over the U. S. A., order a supply of these veils each season, year after year.

A. G. Woodman Company, Grand Rapids, Mich.

THALE'S REGULATIVE VACUUM BEE-FEEDER

IS THE BEST BY TEST. Arrangements have been made with the leading dealers and bee-supply manufacturers to catalog and sell this feeder for 1915.

Watertown, Wis., May 7, 1914.

Mr. H. H. Thale, Maywood, Mo.

Dear Sir:—Referring to your bee-feeder and the test Mr. Kenneth Hawkins made for us, we are herewith enclosing a copy of his report just received, and which will undoubtedly be of interest to you. We have now made note to list this feeder in our 1915 bee-supply catalog, and will place our order for feeders in due time.

Yours truly, G. B. LEWIS Co.

Plainfield, Ill., May 4, 1914.

G. B. Lewis Co., Watertown, Wis.

Dear Sirs:—In referring to comparative tests of bee-feeders, in my opinion there is no better feeder for stimulative feeding or for the queen-breeder than Thale's Regulative Vacuum Bee-feeder. It is better than the Boardman in that the bees can always take the syrup, even in coldest weather. They took feed here with the temperature at 22 degrees at night. There is no comparison between the Thale and Boardman or division-board feeder, owing to the ease with which one may control the flow. It is better than the Alexander for the same reason, and that it doesn't make a nuisance fastened to the hive. The Miller feeder will always be the best fall feeder for handling large lots of syrup, I believe, but the Thale may be fed so as to empty in 12 hours. I have found, and that threatens to outgrow the Miller, owing to the ease of operation and lack of bothersome equipment.

The value of stimulative feeding is already known; and within 24 hours after feeding with the Thale I had eggs in every cell that the bees could cover here, with the temperature below freezing —this with pollen from the maples. All together I recommend the Thale feeder as being the best feeder I have ever used.

KENNETH HAWKINS, Breeder of Quality Hill Queens.

Beekkeepers can buy these feeders from G. B. Lewis Co., Watertown, Wis., and their thirty distributing houses; Minnesota Bee Supply Co., Minneapolis, Minn.; Leahy Mfg. Co., Higginsville, Mo.; Earl M. Nichols, Lyonsville, Mass.; B. H. Masters, Edison, Ohio, and Harry W. Martin, New Holland, Pa. I want every dealer and every manufacturer of bee-supplies to handle these-feeders next season. Write for jobber's prices. Buy these feeders from your nearest dealer in 1915.

H. H. THALE, MANUFACTURER

MAYWOOD, MISSOURI

Eastern European Beekeepers

You can receive Root's goods quickly from the following European shipping points:

Alexandria, Egypt
Athens, Greece
Bucarest, Roumania
Genoa, Italy
St. Petersburg, Russia
Sofia, Bulgaria
Strassburg, i. E., Germany

For catalog and inquiries write at once to : : :

Emile Bondonneau

Root's General Agent for Eastern Europe and Colonies

154 Ave. Emile Zola, Paris 15 (France)

"Curiosity Killed a Cat."

That is a well-known old-time saying; but it does not apply to you, because YOU ARE NOT A CAT. It is safe for you, and for your wife and your children, to want to know what is to be found in the woods and the fields around you, in the swamps and meadows, the ponds and ditches. Do not hesitate to indulge in the JOY OF CURIOSITY. You are not a cat. You can satisfy the desire to know by reading

THE GUIDE TO NATURE

It is ten cents a copy; one dollar a year.

Address

ARCADIA :
Sound Beach, Connecticut

Eleventh-hour Needs

Notwithstanding the heaviest demand for supplies ever experienced here, we believe that, with very few exceptions, our customers have been served in a prompt and satisfactory manner.

As it is not always possible to anticipate one's exact requirements, something—hives, supers, sections, or foundation — may be needed at almost the last minute. These rush orders we can now fill with the utmost despatch. Then there are the seasonal goods—bee-escapes, shipping-cases, extractors, tin cans, glass jars, labels, etc., any of which we can furnish on short notice. It will be to your interest to look carefully through our illustrated catalog, which will be mailed you on request.

FLOODED STOCK

There still remain a few odds and ends of flood-damaged goods. As long as they last, any of the following will be sold at just one-half the catalog price of new goods. Cash must accompany remittance, and right is reserved to make any reasonable substitution.

Plain, slotted, and Danz, section holders,
Danz, brood-frames,
Daisy, Root, and Parker foundation-fasteners,
Spur and tracing-wheel imbedders,
Miller and division-board feeders, set up,
Carlin foundation-cutters, tin,
Porter bee-escapes, Tinned wire,
Bingham Engine and Little Wonder smokers,
Manum swarm-catchers and poles.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

The Successful Apiarist of Tomorrow

will be the man who runs

OUT-APIARIES

BY THE MOST APPROVED PLANS

Learn How by Reading Management of Out-Apiaries

A 72-page book by the well-known writer
G. M. DOOLITTLE
of New York

The best work on running a series of yards that we are able to offer. Twelve chapters, seventy-two pages. Price 50 cts. per copy postpaid. Get a copy now of the publishers.

The A. I. Root Company
Medina, Ohio

Keep Well by Using Well “ROOT’S” GOODS

The Very Foundation
of Modern Beekeeping

Better let us send you a catalog of Root's, that you may be able to select the kind that will enable you to have a healthy and prosperous summer.

**The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street**

Beeswax Wanted!

We Expect to Use
SEVENTY TONS

of beeswax during the next **SIX MONTHS**, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. **CASH**, 35 cts. **TRADE**. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder

873 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in — They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

CATALOG C.—BERRY SUPPLIES. We carry a full stock of standard quart baskets and 16-quart crates. BEESWAX WANTED.

M. H. HUNT & SON, 510 North Cedar Street, LANSING, MICHIGAN

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PRACTICE

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Patent Counsel of
The A. I. Root Co.

Patent Practice in Patent
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IF IT'S FOR BEES WE HAVE IT

A full line of supplies always in stock. Let me know your wants. Send for catalog.

H. H. JEPSON
182 Friend Street BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

Beekeepers' Supplies



Our 1914 64-page catalog ready to mail you free. . .

Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

YOU will need bees or supplies during the coming season. We can save you money. Our catalog, which is free, will show you. Italian queens, \$1.10.

I. J. Stringham, 105 Park Place, N. Y.
Apriaries, Glen Cove, L. I.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

With four carloads of new goods on hand, we are now better prepared for the rush than ever. But don't wait to be in the RUSH. Send your order in now, and have the goods on hand, ready for use.

New Illustrated Catalog of 60 Pages

We want one in every beekeeper's hands. Send postal for one to-day. It is free.

White-clover Extracted Honey Wanted, also Beeswax

in exchange for supplies. It will be to your interest to get in touch and keep in touch with us.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO

"Griggs Is Always on the Job"

Be Careful of Your Honey Crop

Now that you are through with all the anxious work preliminary to gathering in the honey

**Look to it that your crop goes on the market right!
See that your honey is in Lewis sections.**

The sections that are scientifically right—made out of nice bright Wisconsin basswood. The manufacture of LEWIS SECTIONS is watched over by experts. LEWIS SECTIONS fold perfectly.

Lewis Shipping-cases are Superb

Do not cheapen your product by inferior cases. You can afford the best. Remember, your shipping-cases are the show-windows for the sale of your goods. Your honey will bring more money if well displayed.

Insist on the Lewis Make

G. B. LEWIS CO., Sole Manufacturers **Watertown, Wis.**
Thirty Distributing Houses. Send for the Name of the one nearest you.

Send for Our Prices on

BEE SWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

**DADANT & SONS
HAMILTON, ILLINOIS.**

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department

E. R. Root, Editor

A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII.

JULY 1, 1914

NO. 13

EDITORIALS

THE reader's attention is directed particularly to the editorial on the net-weight law as it relates to comb honey. See page 487 of this issue.

The Golden or so-called Five-banded Bees

It is refreshing to note that those who advertise golden Italians are more conservative in their advertisements. The time was when five-banders were advertised, but only three and four banders were sent out. The beekeeping fraternity has learned that a strictly five-banded queen is a rare bird. It was folly to advertise them when they could not be furnished.

Our Front Cover Design

THIS shows a small section of our Apalachicola apiary, with one of the workshops in the background, some three or four weeks before the first car shipment was made. In the mean time these two-story colonies were increased to three stories, and in some instances up to four; then when the carload shipments began to move, the colonies were split up into one-story sections, each one being supplied with a queen.

The view shows a convenient arrangement for hives and the nice board walk that runs down in between; but it does not show very clearly that these walks and hives were some five or six feet above the ground, as heretofore explained, in order to escape high water.

Postponement of the Date when the New Ruling Regarding the Guarantee Clause on Pure-food Packages Shall Become Effective

WE have just received notice from the United States Department of Agriculture that the ruling with regard to the elimination of the guarantee clause on food packages will be effective May 1, 1916, instead of May 1, 1915, as first announced. It would

appear that the manufacturers of food products found that it would be practically impossible to dispose of their goods by May 1, 1915, and asked for a postponement of one year more. Full particulars regarding this are given in our issue for June 1, page 401. It should be clearly understood, however, that this has nothing to do with the operation of the net-weight law given on page 487. There is as much or more reason why there should be a postponement on this.

Limitations of Parcel Post

SOME of the dealers in beekeepers' supplies have received numerous complaints from their customers because their goods were sent by express rather than by parcel post. The fact is, all should remember that a limit of 50 lbs. is for local delivery or no further than the 150-mile zone; and 20 lbs. is the limit for all distances of 300 miles and over. Again, it should be understood that many things can be sent cheaper by express than by mail. If you will leave the matter with your dealer he will select parcel post, express, or freight according to conditions. It sometimes happens that the cost on express packages will be so great that he will send by freight, and of course that means delay.

This has been an extraordinary year for supplies. The call for goods to go by parcel post has been enormous; and while no doubt that means of delivery has been a great boon to the public at large, there are many times when express will be cheaper.

Methods of Imbedding Wires in Foundation

YEARS ago A. I. Root imbedded wires with a hot point drawn along each wire, with just enough pressure to sink the wire half-way through the foundation. Since reading Arthur C. Miller's article, p. 495, we have been trying the plan again, comparing it to the plan illustrated on page

801, Nov. 15, for last year. The hot iron really does very nice work; but on account of the greater danger of missing the wire or running off and melting a hole in the foundation, and also because of the necessity for having all conditions just about perfect for good results, we still prefer the wide-toothed imbedding-wheel. This tool, as explained, is altogether different from the old tracing-wheel imbedder. It may be used hot or cold; but when hot it leaves a little bridge of melted wax across the wire at each point where a tooth strikes, which bridge is about $\frac{1}{4}$ inch long, or as long as the tooth is wide. The wire is not heated, and the imbedding is done by pressure in the usual way, although the tiny "bridge" of surplus wax from each tooth as it strikes holds it securely so that it can not move.

We are not particularly in love with the groove - and - wedge plan of fastening the foundation to the top-bar. However, since we happened to be fitting up a lot of frames we took occasion to time the operation. Time after time, we picked up a frame, dropped the foundation in the groove, put the wedge in the other groove, and sank it down below the surface, and imbedded the wires with the hot gear imbedder all in 30 seconds. We cannot average two frames a minute, however, and we judge that Mr. Miller does not intend to convey the idea that that is *his* average speed.

Field-day Meet at Medina, July 9, 10

In addition to what was said in our last issue concerning the field day at Medina July 9, 10, under the auspices of the Ohio State Beekeepers' Association, we may add that plans are well under way for a good meet here. President Matheny sends the following provisional program for the evening of the 9th:

Report of Chief Inspector of Apiaries...N. E. Shaw
Beekeeping in the early days.....A. I. Root
The Inspector's point of view.....E. R. King
Fads and Fancies.....E. R. Root
The honey crop.....Fred Leininger

During the afternoon of the 9th and the forenoon and afternoon of the 10th, there will be field-day demonstrations. On the 10th we shall make a demonstration with power extracting machinery, all of the latest pattern. Ample facilities will be afforded seeing each step in the whole process.

Our men who devote their time to queen-rearing will give demonstrations in grafting cells, and, in general, the entire process of rearing queens from start to finish; and in order that all may see, we will have different demonstrators in the field.

We regret that it will be impossible for either Dr. Miller or Mr. Doolittle to be here.

Sickness in Mr. Doolittle's family, and the extreme age (83) of Dr. Miller, render it practically impossible for either of them to be with us; but fortunately one of the Dadants of Dadant & Sons will be here.

A. I. Root will relate some of his early experiences in beekeeping, about his ups and downs, of his acquaintance with Rev. L. L. Langstroth and other prominent bee-keepers of the early days.

LODGING AND BOARD.

As Medina is not a large town, our hotels and restaurants will be taxed to their utmost limits to take care of the crowd. It is absolutely necessary, in order to secure lodgings and meals, that those who expect to attend send in their names in order to secure accommodations. We may have to put up cots in our warehouse; and the probabilities are we shall have to get some church organization to feed the overflow who can not be accommodated at the hotels and restaurants. Meals at the American House will be 50 cents; at restaurants, 35 cents; and the ladies of the church will probably charge the same amount. The probabilities are that any ladies who come can be accommodated in our homes on the nights of the 9th and 10th.

Unless each one of you who expects to attend this field meet sends in his name in advance he may not be able to secure lodgings and meals. If you are not sure you can come, but yet expect to, send in your name anyhow. All such letters should be sent to E. R. Root, at Medina, who is looking after accommodations.

1914 Honey Prospects; Clover Crop Not Promising; Prices

THE prospects for a clover crop are not promising. The excessively hot and dry weather during the fore part of June, followed by cold weather and no rain in many localities put a decided check on clover. In some cases it seemed to be parched out and gone to seed; but recent rains (which have been general over the north-central portions of the United States) may change the situation where they were not too late.

To be more specific, the clover crop is not going to be a failure by any means. While it will probably be just that in some localities, there will be from fair to good yields in others; the reports from Michigan are from good to bad; but most of the reports we have read thus far indicate either a short crop or an entire failure. Two of the largest producers of Ontario expect a short crop.

It is too early yet, however, to get definite statements, as the reports up to date are few and scattering; but in our own locality it looks now as if we are to get no clover—hardly enough to fill up the hives; but we have just had (June 23) some very heavy soaking rains, and we hope the bees will get enough to fill their combs. But even at best we do not expect to get an extracting from clover.

Basswood never looked better; the prospect of honey from that source seems to be good all over the country where basswood grows. One or two fear that the seventeen-year locusts will do some damage; but this damage will probably be only minor. But, unfortunately, the basswoods have been pretty well cut off; and even if they do give their nectar splendidly, the aggregate will not be large.

In spite of discouraging prospects we do not know when we have had a year when there has been such a heavy demand for supplies. The factories have been running overtime. There must be some prospects of a honey crop or there would not be such a call for goods. The next issue will tell the story.

The prospects for alfalfa honey, both comb and extracted, are very good except in the immediately vicinity of Denver, Col., where the bees appear to have been killed by smelter smoke. Reports regarding the yield from mountain sage are somewhat hazy; but it is our opinion there will be considerable mountain sage this year, and some orange blossom. Texas appears to have had a very fair crop; but as it consumes its own product largely, it will not have very much influence on the market.

PRICES FOR 1914.

A couple of weeks ago, producers and buyers were undecided where prices would go. The large amount of honey left over from last year created a feeling of uncertainty in the face of a promising yield from clover in the Eastern States; but as the yield from that source will probably be light—nothing like what it was last year—it would appear that prices ought to be firm, with a possible tendency upward. At all events, we would not advise those who have large amounts of last year's extracted to unload at low prices.

In the mean time we solicit reports from honey-buyers and producers generally; but be sure to make your reports brief.

Later.—Telegrams since the foregoing was written are as follows:

Clover prospects in this locality indicate a big crop. Weather is cold and rainy.

St. Paul, Minn., June 23. THE A. I. ROOT CO.

Late Rains Starting the Honey-flow Again

Later.—Since writing the foregoing it is apparent that the heavy soaking rains have started up the clovers again. Before these rains fell, and for a day or two afterward there was nothing doing in our yards, and the bees got to robbing; but we are now (June 24) having hot muggy weather, and the ground, thoroughly soaked, is pushing up the belated clovers that are yielding nectar. The boys are now rushing on the supers.

Reports from over the country show that the rains are quite general in the clover belt, and these have boosted the prospects for clover. If these same rains had come a week or ten days earlier, there would have been a big crop of clover, without doubt. As it is, there will probably be from a light to a fair crop. In any case the yield can hardly be as heavy as last year.

We shall probably secure enough honey to make a demonstration with power extracting machinery on the field-day meet at Medina, July 9 and 10.

The Net-weight Law so far as it Applies to Comb Honey

A FLOOD of inquiries have been coming in, asking for some more specific information than was given on page 385 of our issue for June 15. We were not able at the time to cover all the points. We are now informed that the net weight on a section of honey means the net weight of the contents in the section exclusive of the wood part—that is to say, if a box of comb honey, including the wood, weighs $13\frac{1}{2}$ ounces we must subtract one ounce and mark the section $12\frac{1}{2}$ ounces net weight, as the wood part of the section weighs approximately one ounce. If the Government insists on this ruling it will mean, other things being equal, that producers and honey merchants will have to charge more, and that a large number of others will be innocent violators of the law.

The actual tendency of the net-weight law will be to reduce prices, as it may be difficult to increase the price on a $12\frac{1}{2}$ -ounce section to a $13\frac{1}{2}$ -ounce price.

As the net-weight law is construed to mean that only the actual weight of the honey in the section is to be considered, then, naturally enough, the glass in glassed sections cannot be weighed in with the honey. Heretofore the section itself and two sheets of glass have been included and sold at the same price as the honey itself. There is nothing morally wrong in this, because if the fancy trade requires honey in that form

—something that will stand rough usage, and which will be free from the depredations of robber bees, flies, ants, and other insects, then such trade should pay for the extra cost of so protecting the honey. But apparently, under the new law, only the net weight of the honey exclusive of the glass and the wood can be considered. As the glass is more variable in weight—more so than the section itself—it will be a little difficult to get at the actual net weight of honey already glassed. Producers who have a trade in glassed comb honey can sell it, but they must weigh up the sections *before glassing*, deduct one ounce for the wood, and mark the net weight on the section, whatever that is—10 or 15 ounces, and then put on the glass; but they can charge only for the honey itself. The practical operation of the law will be to exclude glassed honey from the market, in our opinion, unless the government reverses its decision on the net-weight proposition as it relates to comb honey.

It will be well to bear in mind that the net-weight law goes into effect Sept. 3 of this year. The law was passed March 3, 1913, and gave the producer and dealer eighteen months in which to dispose of all old stock; but the decision to exclude the weight of the section has only just been announced (May 28). As many beekeepers were honestly of the opinion that they could include the weight of the section they sold, a large amount of honey on the market will necessarily be misbranded. Just what the Government will do in cases of this kind is hard to say. This may work a more severe hardship on the large producers and dealers than on the smaller ones.

As soon as we can get a more definite statement we will place the same before our readers. But Mr. Frank Rauchfuss, of the Colorado Honey-producers' Association, wrote to Washington and received a night-letter telegram as follows:

Regarding branding honey in frames or cartons, weight of actual contents should be marked upon frames of individual units, or upon outside of cartons when used. Regulations, paragraph H, minimum weight blank ounces, is suggested as convenient. Form letter follows.

C. L. ALSBERG.

From the letter following, Mr. Alsberg makes this statement:

"We note the custom of your association, and in that connection your attention is particularly called to paragraph H as suggesting a convenient method of branding which will meet your conditions. The statement of weight, however, should be that of the contents, *exclusive of the wooden frame*."

This leaves no room for doubt; and it is apparent that dealers and producers alike will have to modify their entire scheme of selling comb honey.

In this connection it is apparent that the net weight of a case of comb honey must be the added-up weight of every section in the case less as many ounces as there are sections in the case. All together it is apparent that the price of comb honey, if sold at the figures of a year ago, other things being equal, should be advanced in order to cover this shrinkage. If comb honey is much scarcer than last year, another advance will have to be made. Of course that advance would have nothing to do with the net-weight law.

Another question has been asked; and that is, whether the ordinary 60-lb. square cans, kegs, or barrels shall be marked with their net weight. As we understand it, the new net-weight law applies only to small packages—packages that go to the consumer, and not to the large containers that are sold in a wholesale or jobbing way to dealers. Honey, however, in square cans varies somewhat in weight. The variation as we find it runs all the way from 56 to 61 lbs. Then, again, there will be a shrinkage on account of evaporation. Some of the honey, perhaps, was extracted a little too thin. The dealer fears that it will sour on his hands, and will remove the caps of the square cans until the honey evaporates down a little.

To be on the safe side, it will be better, in our opinion, to mark every can, keg, or barrel, with the exact net weight of the honey. The ordinary square cans will have an actual weight of about 2½ lbs. But kegs and barrels will vary so much that each barrel and keg will have to be weighed separately.

We have taken this matter up with Dr. E. F. Phillips, of the Bureau of Entomology, suggesting that he explain to the committee of the pure-food department some of the difficulties that producers are going to meet under the operations of this new law providing that only the wax and honey are considered, and providing that it goes into effect in September of this year.

In conclusion, we should say that we enter no complaint at the general intent of the law, which we believe to be thoroughly good. All we ask is that the Government, in view of its decision of May 28, give beekeepers' associations and dealers an opportunity to dispose of their old stock before the law becomes effective. If the action of the law could be deferred until September, 1915, instead of September of this year it would work no hardship on any one. Of course it will occasion some inconvenience; but in the end we shall all be able to readjust ourselves.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

HALF-INCH bottom-starters are mentioned, p. 327. As the bottom-starter is my baby, I'm anxious it should have the best chance, and would advise against any thing less than $\frac{5}{8}$, no matter what the size of the upper starter. The half-inch starter is harder to put in, and the bees are more inclined to tear it down if a dearth occurs.

"THE wave-like motion of the intestines, says Dr. Lorand, is primarily mechanical, and peristalsis can not continue unless there is some bulk of food on which it can take effect. Hence follows the singular result that if we eat only the food that we ought to eat, that solely essential to nutrition, we should be worse off than if we ate a great deal of material that has no nutritive qualities whatever." This, from a medical journal, is commended to those who are worried about eating comb honey because wax is indigestible. Fact is, if we would be well we must eat a lot of indigestible food, and wax works wonderfully well. [The story is told of a ship captain who ran out of hay for horses on his boat; but he had plenty of oats. But in spite of this concentrated food the horses kept going down. He then instructed his ship carpenters to take their planes and plane up some of the plank he had. The shavings were then mixed with the oats, when the horses began to build up. Planed shavings are indigestible, but in this case they accomplished the object sought.—Ed.]

A. I. Root, p. 477, you say there are 12 kinds of Presbyterians. Yes, nearly as bad as the "57 varieties" of Congregationalists. But then, Congregationalists have no synods and presbyteries to hold them level, and so there can be almost any variety under the same name. But please don't hold me responsible for all the fool things done by Presbyterians. I'm doing my little best to get them all together. But I don't believe in waiting for the 12 kinds of Presbyterians to get together before trying to have a bigger uniting. I don't believe there's any more excuse for Presbyterians and Congregationalists to keep separate than there is for the different Presbyterians. In Canada there's a movement on foot that I hope may soon end in uniting Congregationalists, Methodists, and Presbyterians. God speed the day when we'll "all be one."

P. S.—My dasheens are up.

[The time will soon come when we shall not have so many denominations. A lot of weak colonies will not begin to do as much effective work as the same numerical

strength of bees combined into a few good colonies. The same principle holds true in regard to churches. Why in the world church denominations cannot get together, especially in our rural communities, we can not understand. It is a travesty on the Protestant church at large. There are hundreds of rural communities that have little struggling churches which, if combined into one, would make a power for good.—Ed.]

FIRST bloom was seen on white clover May 27, and we began putting on supers. The rule is that the flow begins ten days after first bloom appears. But this year the bloom increased so rapidly, and was so immense in quantity, that we thought the ten days might be shortened. When the tenth day came, June 6, and not a thing doing at the hives, we began to make ready to face another year when white clover doesn't give down. June 6 it rained in the forenoon; but as soon as it cleared at noon and before it was fairly dried off, the nectar began to come in a flood, and in the ten days since then the flow has kept up whenever it was not raining. The cold has not seemed to make much difference, for it has been pretty cold. While I'm now writing this, at 11 A.M., June 16, it's 63 degrees outdoors, and—just wait a minute Just been down to the apiary where Miss Wilson is at work, and I said to her, "Well, how is it?" "Not so very well," she replied ruefully. "It's so cold that they're fearfully cross. It doesn't seem they could be doing any thing when it's so cold, but they have. I've been over sixteen colonies, and I've put on ten fresh supers, and it's only six days since they were given all the supers they needed. But, aren't they cross? Mercy!" (It's cruelty to animals to have any one work at bees at such a time, and I don't know that it ever happened exactly the same before.) An unusual combination of circumstances seemed to make it imperative that, for several days to come, the bees should be left to themselves. I said, "No need to do any thing to-day—too cold. Instead of doing that now before it's time, it can go a little over time." But with her usual persistence Miss Wilson said, "We'll take no chances; those colonies will be done to-day." And done they were, or at least they're being done. With the exception of hindrance from rain, the season seems as good as last year, so far. How long it will continue is another story. [We are glad that you have prospects of honey. We have none around here unless it comes from basswood.—Ed.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

EXTRACTED HONEY AND THE BUSINESS BEEKEEPER.

For the business beekeeper who is a salesman, there is no doubt that extracted-honey production is the best as a money-maker. The expense for supplies is very much less, and the money received for extracted honey will equal comb-honey prices if it is put up in glass and tin packages and sold under a trade name, as are other fancy food products. The average beekeeper does not have time to look after the sales side as it should be, but there are some beemen who are proving themselves capable of handling both.

* * *

SHALL APICULTURAL EDUCATION BE ENCOURAGED?

Mr. Hershiser writes a very interesting article on this subject, page 331, May 1. I say yes, if scientific marketing and distribution is made of equal importance with the production of honey in the course. Those who now are leaders in propaganda for apicultural education are not placing emphasis on developing and extending sane methods of distribution. They believe, or at least they act as if the proper procedure is to encourage more production, and thereby save some of the nectar going to waste, and then let the beemen hustle to get rid of the crop in a hit-or-miss manner. Science in production and demoralization in distribution! Let the beemen do their own organizing; we will teach new comers in the apicultural ranks how to compete with them in producing honey; then they can all get into the grand squabble in selling their honey. That is just what we had last year in the West, and it was a grand squabble, I can assure you. Some of our brothers have a lot of honey to carry over because they got caught at the wrong time or were not willing to cut the price low enough. I know some men who have had to hold extracted honey for three years before selling it, and borrowing money all the time to live on. Let us get busy with a little apicultural business education lest the new beekeepers be forced out by failure to make the business go.

I think it is not the right course to limit education, for to do so is useless, any way. The American people are too much in favor of more and more of it. But let us make it broader than we have so far thought possible. Those who have talked limiting education and production are taking hold of the tail instead of the horns of this proposition.

The honey industry is not anywhere near the danger of overproduction that fruit-growers face. Mr. Hershiser is wrong when he says that the educational forces have not discouraged further extension of the fruit industry. The Extension Department of the Colorado Agricultural College has been doing that very thing. On the western slope of Colorado the people were specializing on fruit too strongly, and the Extension Department has been trying to bring in more diversified farming operations, pointing out that we could not profitably compete with eastern orchards if more acreage were planted. I do not think that the advice has been as effective as the actual conditions faced have been. I have seen more orchards pulled up than set out in the last few months.

Mr. Hershiser says the unschooled, untutored owner of bees is the menace. True; but he is not *the* menace in the West. The menace in the West is one hundred or a thousand alert intelligent specialists all trying to sell their year's production in sixty days and get their money for it so they can stop some of their loans at ten and fifteen per cent. Some means must be devised to advance twenty-five to fifty per cent of the value of the honey to the producer at once, and then let the honey be held until it can be distributed and sold in the unsupplied markets. At least seventy-five per cent of the bees in Colorado are owned by men who run them as a business proposition, and produce a commercial article of honey. This, I believe, is true of the other Inter-mountain States.

I was told several times by Kansas City grocers that they could sell three times as much comb honey at 15 cents as they could at 20 cents. When comb honey retails in Kansas City at 15 cents what will the producer in Colorado, Utah, or Idaho get? He got this past year \$1.75 to \$2.00 a case for 24 sections of well-packed honey. His shipping-case cost him 19 to 25 cents each, and his sections \$5.00 to \$6.00 per 1000, and other supplies in proportion. If he borrowed money it cost him ten to fifteen per cent. Comb honey has been retailing in Boulder for some months at 10 to 12½ cents for beautiful, clear, heavy-weight honey. Some of the grocers lost money on it. These prices are getting down close to the actual cost of production, and some honey has undoubtedly been sold below it. Let us get together and have some education to change these conditions.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

I have some samples of honey from the first cases extracted that are surely fine—so white that you can see letters through a glass of it, and so thick it can almost be tied in a knot.

* * *

The State asylum at Patton is said to be full of beekeepers, most of whom are suffering with fog on the brain. Attending physicians say all will recover with the advent of clear warm weather.

* * *

June 7 was one of the coldest, most cloudy, and disagreeable days of the season. A coal fire was burning all day at my home, and really was a comfort. Late in the day heavy showers fell, and a general clearing-up followed, since which time we have had beautiful warm days.

* * *

E. J. Atchley, in the *Western Honey Bee*, thinks neither good queens nor drones can be raised out of season; yet I made big money from those raised and introduced in October last year, while those introduced in April and May failed me to a great extent in the midst of the heaviest part of the present season. It is more profitable to introduce queens in late summer and autumn than at any other time, for they as a rule give a good account of themselves the following spring.

* * *

A poor queen can not always be judged by the amount of bees in her colony. I have known this rule to be used, but it is not infallible. Recently I had a very small colony whose queen to all appearances was first class. To test her I exchanged stands with a very strong colony. In six days she had increased her brood space more than ten times the original amount. I was so pleased with the outcome of this trial that I have tried it on others, saving several fine layers that I might otherwise have destroyed. A weak colony at the end of a long honey dearth is not necessarily a sign of a poor queen.

* * *

Will the specialist beekeeper ever again suffer severe winter losses? asks the headline in one of J. L. Byer's notes on page 326, May 1, to which I venture the answer, "yes." When the beekeeper thinks he has about mastered the business of making a perfect score along this line, he will some

time see that he has missed the mark about 50 per cent, for no apparent cause other than the shifting of conditions in nature's plan to a point that had never before been encountered. To-day there are many beekeepers in our Southland, long since classed as professionals, who have only half the number of colonies they had early last season, in some instances a fourth. This is not because they are not specialists, but because they met problems they were not able to solve in time to prevent heavy loss. These problems were hard to foresee.

* * *

Mr. Editor, do you not believe it is a matter of education more than the flavor of honey that guides the consumer to the kind of honey he purchases? My second daughter will not touch comb honey, because she has eaten only extracted. She says comb honey is not good. A neighbor of mine thinks that only buckwheat honey from New York is good to eat. Another wants his honey candied hard so he can cut the top out of the can and serve it butter style. There are hundreds, and I might say thousands, of people in this State who, in speaking of honey, think only of the extracted product. In the East I once undertook selling extracted honey in my local market, but failed, because people were not used to it and thought it was squeezed through a cloth or tramped out by foot power—that it must of necessity have sugar in it or it would not candy.

* * *

I have read from time to time of many peculiar cases of bee-sting poisoning; but the one that has come nearest home, and was the most peculiar I have ever seen, happened last week. My wife is very susceptible to the poison of the sting of a bee, and last week she was stung on the thumb between the nail and the first knuckle joint. In a few minutes she began to cough violently, which continued until she was exhausted. All day at intervals the coughing spells would continue. But the most peculiar feature of the incident was that in thirty minutes her eye was swollen almost shut, although the direct swelling from the sting reached only a short distance above the wrist. There was a red line about half an inch wide traveled from the sting up the arm, over the shoulder, the neck and face, and the swelling of the eye began with the result mentioned.

J. L. Byer,

NOTES FROM CANADA

Mt. Joy, Ont.

Reports from those fortunate enough to visit friend Sibbald's apiary on the 25th of May at the big field meet say that all had a good time. While not there myself, I feel quite sure that a pleasant and profitable time would be spent by all present. We started across country—a trip of over 50 miles from our place, and when half way there a heavy rain kept us at a friend's home for half a day. As we still had 25 miles ahead of us with heavy hills and some clay roads, we thought better to turn back home again.

* * *

On page 432, June 1, Mr. Buchanan, of Tennessee, in giving a list of plants visited by the bees in his State, credits dandelion with nectar secretion alone. With us it is a great pollen-yielder, and of late years I am inclined to think that not so much nectar comes from the plant as I formerly believed. Willows yield most of the nectar at that season, the dandelion giving enough to impart the flavor peculiar to that plant.

He also mentions the aster as yielding a honey that granulates readily and makes good winter stores for the bees. This is likely down in Tennessee, but aster honey left in the brood-nests in the fall in northern locations too often spells death to the colony for many beekeepers to take a chance to winter their bees on this kind of stores.

* * *

In the Feb. 15th issue Dr. Miller says that our hotels have not yet got to the point of advertising for honey, as is the case in Switzerland. He is right, and more's the pity. Our hotel men seem to be very loath to serve honey on their tables. Of course, there are exceptions to this, but it is the rule just the same. They will tell you it is a "mussy" thing to serve; and if one watches people not used to eating honey, but *trying to eat* it for the first time, surely we shall have to agree with the hotel men. I was reared on the farm in a community where nearly all the people were of German descent. On the tables, abundance of good food was always in evidence; but the rule in most homes was that all "help themselves." Our home was no exception to this, and often can I remember the looks of mortification on the faces of the many city visitors that used to come to our place when they would try to take a spoonful of good ripe honey from the large dish that would be passed around the table. A spoonful would be dipped out and held for a while with an

uncertainty as to what to do. A sudden movement would be made toward the dessert-dish, and a long trail of honey would be on the table-cloth between the starting-point and final destination. Possibly we need to do some educational work along the lines of telling people how to handle honey if we ever expect to see it served regularly on the tables of our hotels.

* * *

I feel pretty sure that the estimate placed on the value of full-drawn combs for the production of extracted honey is in no way exaggerated, page 330, May 1, and yet how are we to explain the fact that some of our best comb-honey producers claim that they can produce nearly if not quite as much comb honey as they can extract? Mind you, I am not saying that this is a possibility; but I know some good producers of comb honey who make the claim, and their results seem to prove they are not far from right. In their case the bees have to draw out all the foundation and work in crowded quarters at that. But I feel pretty sure that the majority of producers with a full set of drawn combs will produce at least twice as much extracted as comb honey, especially if the season is none too good a one.

* * *

Mr. Hershiser's article on page 331, May 1, is interesting, and much of it conclusive. His writings generally are of that class. However, I do not agree with him in all he says; but for want of space in this department it would be unwise for me to try to take issue with him. And just here I might remark that the writer of these notes is no doubt referred to in a veiled manner by friend Hershiser when he speaks of the "two classes of beekeepers." No doubt Mr. H. will smile when he sees this, and say, "If the shoe fits, put it on," and I hasten to assure him that I gladly do so, and, more than that, there is no "pinch" noticed at all, for it slips on comfortably. Why? Just because I happen to know that I am in mighty good company, as evidenced by the scores of unsolicited letters from the best-known and most representative beekeepers all over the United States and Canada, endorsing the position I have taken in a certain journal devoted to the beekeeping interests.

In connection with this subject of the value of schools and other educational means of helping beekeepers, please notice that not once have I combated *any* real work along

that line! but I have and still do oppose certain methods of booming and often misrepresenting the possibilities of the industry as has been done in the past. This position is a lawful one for any person to take, and he would indeed be a hypocrite, to say the least, if he thought one way and expressed himself publicly in another manner.

Regarding the matter of overstocking, the editor says, page 333, May 1, that he happens to know that the apicultural student at college has it pounded into him that it is foolish to locate his apiary near one already established. This is no criticism of the above statement, for I would expect such teaching to be given. However, many have no hesitation in doing this very thing, no matter how much "pounding" has been done to the contrary. But just here let me whisper, that beginners are not always the only transgressors in this respect, for I have known old beekeepers to go and do this very thing; and unless there is some great big and worthy excuse for such a move, the least that can be said in defense of the practice is that "it is hardly commendable."

* * *

DISTANT PASTURES ALWAYS LOOK GREEN.

The above is an old and true saying. I am reminded of this when I often see people thinking that almost every location is better than their own. In some seasons I have been tempted to think that myself. Two years ago I ran across what I thought was one of the greatest clover locations in Ontario, judging by the looks of the country at the time, and by the past records as told to me by people living there. As a result of these impressions I established a large apiary in that location, since for a few years previous crops had been slim in our home location. Well, as a sequel to this move I might say that in this choice location for the two years since we moved there, the greatest drouth in the history of that section has practically killed all the clover. Last year we had a heavy crop in our old locations; and if all the bees moved up north had been near home, results in dollars would have run up to quite a tidy sum over and above the receipts of the apiary where it is now situated. Now, I believe the good seasons will again return to that section, and we intend to stay there with the bees, and wait for a while at least. None of the bees were taken from the home locations in starting this out-apiary, and the moral I have in view in giving this little experience is to warn the man with but a single apiary not to be in a hurry in rushing into a another location simply because for one year said location

does better than where he is situated. Moving bees and starting outyards at a distance costs money and a lot of work; and after one has gone to all this sacrifice, and then in the end learns that he has left a better location than the one into which he has moved, he is apt to think that experience, even if a good teacher, is sometimes a mighty expensive one as well.

* * *

SEASON PROSPECTS TO DATE.

Weather conditions since my last writing have changed but little, and to-day, June 11, our section of the country is very dry, and the little clover we have is short and stunted, just coming into bloom nicely. Unless something out of the ordinary should occur, we certainly cannot look for much clover in our locality this year. I have just returned from the apiary 100 miles north of my home, and there the conditions are still worse, scarcely any rain having fallen this spring. I understand that conditions are better in western Ontario, as the drouth was not so severe there last season as with us, and this spring they have had numerous showers. Taking conditions in general for the Province, I predict a light yield of clover honey; but then, one never knows for sure, as occasionally something we do not look for occurs in beekeeping, even in so far as our expectations are concerned, as has been proven over and over to all who have been in the game for any length of time.

Very little honey was gathered from the early willows this year, as the season was generally cool. But when the large yellow willows and the sugar maple came into bloom we had five very warm moist days, and how the nectar did come in! The maples broke all previous records in our locality, and brood-nests were jammed with honey and pollen. Fruit-bloom lasted but a few days, and yielded little, so the rush referred to was a splendid thing for the bees.

Never before have I had so much honey in the brood-nests at this time of the year; and as it is impossible to get it all into brood before clover comes on, I should not be surprised if more or less of this honey got hoisted above into supers if we happen to get a flow from clover. Although we have had a drouth of nectar for ten days since fruit-bloom, yet all colonies are heavy with new and old honey, many of them having considerable in the supers. Of course, this means that the bees are ready for any thing that comes along in the shape of a honey-flow, and this is the one bright spot in present prospects.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SOMETHING BETTER THAN FINANCE IN BEEKEEPING.

"Why don't you old fellows like Dr. Miller, J. E. Crane, and yourself tell us something of the financial success of your forty to fifty years of beekeeping? I am thinking of going into beekeeping; but unless there is money in the venture, I do not care for the undertaking. How much have you laid aside from the bees since the year 1869, the year you embarked in apiculture?"

Well, before saying any thing regarding the thing our correspondent wants to know, allow me to say that my advice to the man who has no ideas regarding beekeeping other than the "money there is in the venture," is, "keep out of the bee business." In fact, the person who can see nothing but the money there is in any venture will have a hard time passing through the world. I remember hiring a man to work for me when I was on the old farm, before I commenced to keep bees, who was continually looking at the sun to see how soon it would be quitting time for the day; and the later he worked the more he would lean on his hoe, and the more tired he would become, all the time proclaiming that he did not believe there was any money in a corn crop. This man wanted big wages, and was not working for any thing but just his wages. To-day he has little if any more than he had fifty years ago.

Another time I hired a man by the month, and this man could see fun in every thing I set him at. He was up early in the morning, and would whistle and sing while he turned off one job after another. He would hoe one row after another of corn, telling me at noon or night how nice it grew, and what a nice green color the leaves were taking on, surprising me by the eagerness he manifested in doing a good job, and keeping ahead of the work we had to do. We had a long job of laying over an old rail fence which we used as "knitting" work when nothing else was pressing. At noon, on the last day before his time was out, it commenced to rain slowly, making every thing outside wet and disagreeable. After dinner he asked me what he was to go at for his last half day with me. I told him to sit down and read a while, and when he felt like it to pack up his things, and later on I would carry him home. He said, "There is that old rail fence we did not finish. I'll go at that." I told him that, of all the worst things that could be done on a rainy day,

the laying-over of an old rail fence was the worst, and that he was to do only as I had told him. After a little I missed him; and on going to the door overlooking the old fence, there he was with on old coat on laying over the fence, whistling and singing away in the rain. He came in half an hour before it was time for me to take him home, saying that I would not have to lay over any more old fence, for it was all finished. This man has to-day a fine place all paid for, with money in the bank, and has held many offices of public trust in the community in which he located.

Now a word or two about the money there is in beekeeping. No man can ever become a Rockefeller or a Morgan through beekeeping; but he can make a comfortable living for himself and his family, secure a good home in which to live, and lay aside something to carry him through his old age so that he need not worry about "over the hills to the poorhouse." But this is only a small part of apiculture (big fortunes made in any business tend to make a man sordid and morose, taking all the pleasure and poetry out of life. He can see only business all the day, and dream of it at night). Besides a comfortable living, a good home, and something laid aside for old age, there is in apiculture something which money cannot buy. The merry hum of the bees cheers the heart, the green fields and leafy boughs make the eyes shine with brightness; the song of the bobolink, robin, and oriole brings music to the soul, while the growing combs of honey sparkling in the sections, or being capped with snowy whiteness, whet the appetite with the keenest relish.

Say, Mr. Correspondent, I would not exchange all these pleasures which have come to me through my apicultural life since March 1, 1869, for the fortune of a Morgan or a Rockefeller. The beekeeper who has first sought the kingdom of heaven and its righteousness has a right to be the happiest man or woman on earth; and if he is not thus happy it is because he does not reach out his hands and take what is offered by his heavenly Father. In my opinion no rural pursuit is the equal of apiculture for pleasure and independence; and it compares favorably with the rest for profit if it is rightly managed. In no year have I ever failed to realize a good profit on the labor and capital invested. But to give just the figures seems too cold and calculating when I look at the pleasure side,

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Third Paper

BY ARTHUR C. MILLER

The second paper on this subject dealt with the proper wiring of the frames, giving a method which produces square frames and tight wires free from stretch under service conditions. They are ready for the foundation, and we must decide what grade to use.

I use the lightest "brood" foundation I can buy. With the paper, a pound contains eleven to twelve sheets $7\frac{1}{8}$ by $16\frac{3}{4}$ inches. Any thing smaller than this is used at a loss. The frames I use have an inch-thick top-bar *without* grooves, $\frac{3}{8}$ inch thick end-bars, and $\frac{1}{4}$ -inch-thick bottom-bar, and the above-dimensioned sheets are just right for them. I should prefer sheets a scant $\frac{1}{8}$ inch longer, if I could be sure of accurate cutting; but as I cannot, I use those of dimensions given.

I have gotten over bewailing small variations in dimensions; but I insist on having sheets with *straight* edges, and cut *square*. Once you run up against a lot that are not right in those particulars, and you will appreciate my attitude. It is almost unusable; and, even if used, will take so much time and give such unsatisfactory results that you will never accept another lot like it.

As to the weight, I use the extremely light for economy. In 100-pound lots I get it at an average price of 60 cents per pound, which is about five cents a sheet, which for the $9\frac{1}{2}$ sheets I use in a hive costs $47\frac{1}{2}$ cents. "Medium brood" foundation costs in same quantities about 56 cents for $7\frac{1}{4}$ sheets, or 8 cents a sheet, which, for $9\frac{1}{2}$ sheets is 76 cents. Light brood costs $6\frac{1}{2}$ cents a sheet, or 58 cents a hive. It is not difficult to see that the highest-priced foundation is the cheapest, *provided* you know how to use it.

I frankly confess that it takes more skill or deftness to work with the extra light than with the others; but as soon as the skill is acquired it works as easily as the others, and the economy is worth all the trouble of acquiring the skill.

For a time I was inclined to want my foundation without paper between the sheets, also for economy, because there are several pounds of paper in a few hundred pounds of foundation; but I soon discoverd that the paper was worth all it cost me. (As I recall it now, it adds about one cent a pound to the cost of the foundation.)

The implements I use are few and simple, and can be bought in any village for a very small sum. The only exception is the board on which to lay the foundation and frame while fastening, etc., and that is easily made. It is in length almost the inside length of the frame—just enough shorter to permit the frame to slip on and off easily. In width it is about one-eighth inch narrower than the inside depth of the frame, and in one edge are driven two brass-headed upholstery nails (these taper, and the frame will not catch on them), so that, when a frame is put on the board, the heads of these nails just rub against the frame. The top-bar is always put against this edge. This board is fastened to two cleats, and when in use it is screwed or clamped firmly to bench or table. This is not necessary, but will be found to facilitate the work. Preferably the bottom-bar is toward the operator, and light should be at one side or come over and behind the operator's head. I like to have the board slope toward the top-bar edge, and do this by wedging up the edge nearest me about one inch.

The other implements, two dishes for wax and the tools shown in view No. 1, consist of a small soldering-iron and two brushes. The soldering-iron is for bedding the wires, and is filed down quite thin at the end one way, and into an arc the other way. Over the edge of this arc is filed a groove just deep enough so it will run on a wire and not slip off, and *no deeper*. Then it is tinned, because the hot wax turns the copper green, and I do not care for the green copper on my foundation and in my combs. It may be so slight as to be harmless; but as I can avoid it I do. Such an "iron" can be purchased for about 25 cents.

The large brush is for "painting" the foundation with wax, and the small one is for fastening the foundation to the frame. It costs 10 cents, and is as far superior to the "wax-tube" and "wax-spoon" as a movable-comb hive is to a log "gum." I tried all shapes and sizes, and all lengths of bristles, and find the one illustrated the best. It is a common marking-brush, such as is used for marking boxes, barrels, etc.

The dishes for the wax are preferably "double-boilers," the cheap sort obtainable at any five and ten cent store. Any dish

will do; but the double boilers are best and safest.

Across the middle of the wax-dish wedge a stick (piece of a bottom-bar) to wipe the brush on. It is better than wiping across the edge of the dish, as no wax runs down the outside.

If single instead of double dishes are used, great care must be taken not to burn the brushes. Put a piece of wire cloth in the bottom of each wax-dish. A square piece with the corners folded *under* will hold the brushes from the pan bottom. Also, always remove the brushes from the wax before it cools. If you do not at the start, you will later.

Into one dish is put pure wax. This is for the large brush. Into the other is put three parts wax and one part rosin. This is for the small brush, and is used to attach the foundation to the frame.

The outfit is placed as follows: On the bench directly in front of me is the board with a two-burner gas "flat" or heater (an oil-stove with two burners will do as well). Over each of the burners is a dish of wax. A lower temperature is needed for the rosin-wax than for the other. The soldering-iron is placed so that it projects over part of one of the flames. The foundation is piled on the bench convenient to one hand, and frames are convenient to the other. On the floor close at hand are a few hive-bodies to hang the filled frames in.

A sheet of foundation, *together with* the sheet of paper under it, is laid on the board, paper side down. The wired frame is laid over all; the foundation is pushed close against the top-bar and one end-bar. And right here you will learn the *value* of square frames and square foundation. Then the small brush with rosin-wax is drawn along the top-bar and foundation, and down each end-bar. Then the "iron" is drawn along the wires, bedding and securely fastening them. Then the large brush is wiped across the stick in the dish to remove any excess of wax, and the foundation painted with it.

The frame is now turned over, the paper peeled off, that surface of the foundation painted, and the rosin-wax drawn along the top-bar and down the end-bars—all very simple and very rapid. I can pick up the frame and foundation, fasten it with rosin-wax on both sides (but not "paint" surface), bed the wires, and remove it from the board in thirty seconds. Try that stunt with the groove-and-wedge plan and spur imbedder, and see where you come out.

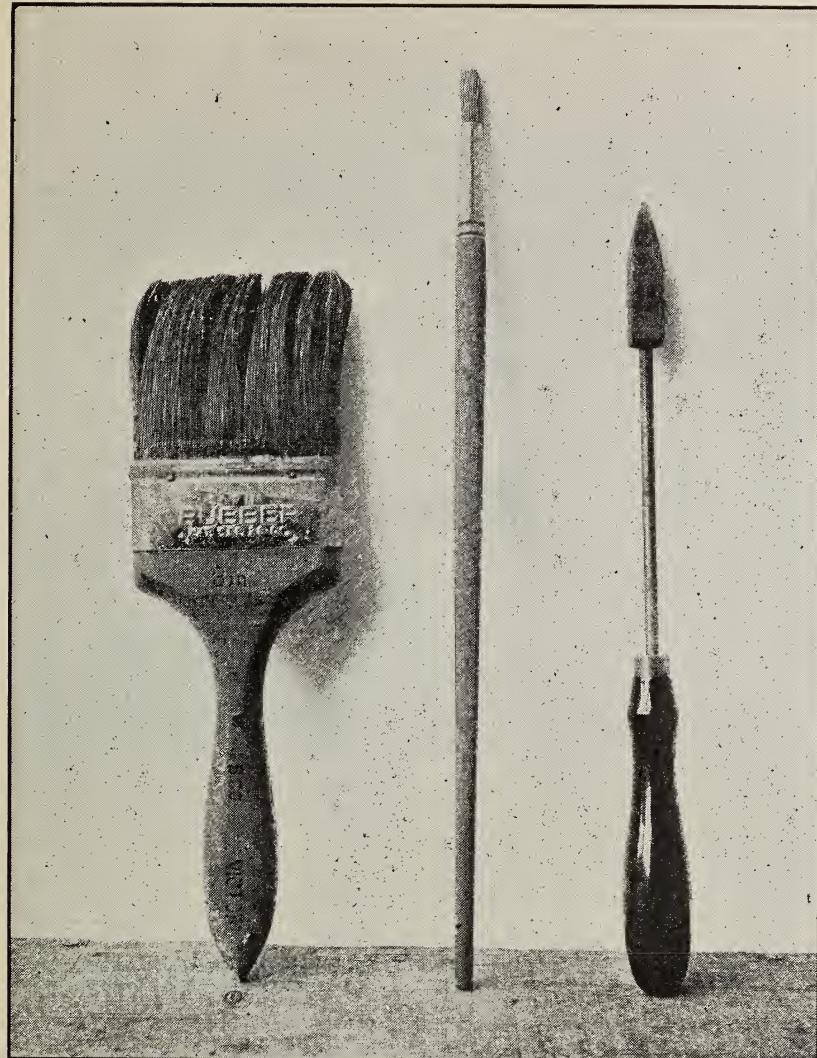
But if you try this system without some knowledge of the principles involved, you will have much labor and trouble before you

succeed. Every part of the work is modified by some other part or condition. If the room is cool you can work more rapidly than if it is warm, and at the same time you need a warmer iron and warmer wax. The thinner the foundation, the more careful you must be about the heat of iron and wax, and also of "touch" and speed. All of which suggests a difficult and troublesome process, but such is not the case. Once you have learned the temperature at which the wax and iron work best at the ordinary temperature of the room, you have only to raise or lower it slightly to meet changes in that factor.

If the rosin-wax is too hot, it will melt the edge of the foundation and run down through. It would stick the frame, foundation, and board together were it not for the space made by the two brass-headed upholstery nails referred to earlier. A little wax will flow to the under surface of the foundation any way, so the space is essential. If the rosin-wax is too cool it does not flow from the brush readily, does not fasten the foundation easily, and calls for too many strokes of the brush. Also, it does not spread on the frame in a thin nice stripe as it should.

The rosin-wax will fasten the foundation securely, while plain wax will not; and, furthermore, and most important, the bees can no more resist the attraction of those rosin-wax stripes than the small boy can resist the lure of the proverbial jam-pot. No sooner do the bees begin to gather on the frame and foundation than they begin to draw out the walls of the cells next to the wood, and the result is a joy to the beekeeper.

In "painting" the foundation if the wax is too hot it softens the walls, does not leave enough without a second stroke of the brush, and a second stroke on the softened foundation makes a mess—that is to say, it flattens it to almost a smooth sheet, resulting later in drone-cells in spots. If the wax is too cold the brush drags, a needless amount of wax is used, and the foundation is not properly re-enforced. The ideal coating gives a thickened *rim* to most of the cells, much as the bees keep them when building natural comb. This very materially strengthens the foundation and lessens stretching. I often illustrate the condition by likening it to putting a rigid cast-iron coating on a tough wrought-iron base. Never mind if some cells get a thin cover or capping of wax; or if the wax fills a few cells you may trust the bees to fix every thing as it should be. A very heavy coating of wax may be applied, and the bees will use it all, but there is no



Arthur C. Miller's foundation-fixing tools. The point of the iron is grooved so that it will follow the wire.

advantage in more than enough to stiffen the foundation. The amount of wax in the brush, the weight of the strokes, and the times over, depend on the size (thickness and length) of the brush and temperature of the wax. Nothing but practice can show you this, but it is worth all the effort necessary to learn.

This process was invented by a Mr. Henry Vogeler, and patented in 1900. In 1912 the *Review* secured and published permission to its subscribers to use the process. I consider Mr. Vogeler's invention almost as valuable as the invention of foundation itself.

The use of the iron for bedding and fastening the wires is simple. Only three factors are involved—heat of the iron, pressure on the wire, and swiftness with which it is drawn. If it is too hot, it will melt holes or even long slots in the foundation. If too

cold it does not "bed" the wire nor properly cement the foundation to it. The warmer it is, the faster it can or must be drawn along the wire; and the cooler it is, the slower it must go. Too much pressure will cut the wire through. The painting will usually remedy this, but it is a poor craftsman who does such work.

If one's hand is not steady, just place the point of the iron against the end-bar of the frame, just above the wire, and slide it down on to the wire—a proceeding which sounds slow, but is not. It is rather important to draw the iron *straight*, otherwise it may jump the wire and make a hole in the foundation. If it does you will see plainly why I have the paper between the foundation and the

board. You can *peel* the paper from the foundation, but if it were not there the foundation would be fastened unpleasantly tight to the board. The paper is one of the little items that make for speed and comfort.

It may be contended that the hot iron will stretch the wire. Well, perhaps it does for all I know; but you have only to look at my frames of foundation and my combs, and take note of the time it takes me to do the work, to satisfy yourself of the value of the process. And I secured these results without the painting process but with heavier foundation.

I have been asked the total cost of a completed comb in material and my time. Here it is as nearly as I can figure it. Frame, 3½ cents; foundation, 5 cents; wax, ½ cent (high); labor, wire, etc., 5 cents. Total, 14 cents. Omitting labor, which is variable in

value, can you produce any such combs by any other process, for a cash outlay of 9 cents each? But cash is not the only item, for speed, pleasure, and results are there also.

Getting the foundation built into combs is usually a matter of chance, but it should not be. It is very easy to lose much of the advantage gained by the methods which I have been describing by giving the frames of foundation to unsuitable colonies or at unfavorable times. Veteran beekeepers usually know that the best results are secured by giving one sheet at a time to strong colonies during a good flow, placing it in the middle of the brood-nest, and the novice

should follow that method, or, if deviating from it, should be sure that the bees are doing good field work or are being well fed. Personally, I prefer to have my foundation drawn out in upper stories over full colonies, and I know of no better time than when the bees are busy on honey-dew. The combs produced then are filled more or less with it; and later, when the combs are put into the brood-nest, it is turned into bees.

The subject is a large one, and really deserves full treatment; but the best conditions for the work may be summarized in these words: Give the foundation to strong colonies in prosperous times.

Providence, R. I.

ANOTHER EXPERIMENT IN BREEDING LARGER BEES IN DRONE-CELLS

BY M. Y. CALCUTT

I have been carrying on an experiment the past season with raising bees in drone-cells. I noticed that you did something along this line some years ago, and found that the bees contract the cells. I found that was true as to the bees that were first placed on the drone comb, but was not true of the generation that was raised in the drone comb. These bees are much larger than my other workers—in fact, they are so large that novices remark their large size. Dr. Miller's contention with me was that I might as well claim that large boots make large feet. Well, Mr. Root, won't they do that same thing? These bees will not be allowed any thing but comb four cells to the inch this coming season. I had them raise their own queen from the drone-cells, and they know no other size of comb; hence they do not contract it. I am carrying these experiments on in the observation hive, and can report correctly on each day's work. Their tongues are longer than my other bees, and I think they will go over 18-100 of an inch. I will make a further report at the end of next season's work.

Seattle, Wash.

[Dr. Miller has had special opportunities of being informed in regard to breeding larger bees, and we asked him to reply, therefore, to the foregoing. His reply follows.—Ed.]

reared in larger cells. That might be confidently expected if the young workers were at all cramped in worker-cells of the usual size. But are they? Is it not likely that in the economy of the hive, where every thing is so nicely adjusted to its desired end, the cell is exactly adapted to the size of the bee—not an iota too large, not an iota too small?

Actual trial, however, is better than trying to reason it out. At one time I put a colony of bees upon a set of drone-combs. Instead of going promptly to work to rear bees of enlarged size, they just decently swarmed out. None of that sort of combs for them! If drone-comb in smaller quantity be given, it is likely to be used either for storing honey or for rearing drones, but not always. Workers reared in drone-cells are much more common than is generally supposed. I venture to say that it would be a difficult thing for you to find an apiary of 50 colonies or more in which you could not find drone-cells in which workers had been reared. Let an old queen have an inordinate quantity of drone-comb, and an inordinate quantity of drones will be reared. But let a vigorous young queen succeed to the throne, and any drone-comb that happens within the brood-nest is likely to be filled with worker-brood. Drone-comb that has been so used is easily recognized. The mouth of each cell is narrowed to the size of a worker-cell, giving it the appearance of being partly sealed over.

But workers from such cells (and I have watched them as they emerged) are not perceptibly larger than common. If they were, it ought to be a common thing in any apiary

At some time in his career it is likely to occur to the ambitious beekeeper that it would be a fine thing to have bees of larger size than usual, and that the nearest way to reach such a thing would be by having them



Second crop of white clover at Cannon Falls, Minn., caused by copious rains in July.
Photographed July 18 by S. C. Swanson.

of considerable size to find these enlarged workers.

All of this, however, is not conclusive proof that workers beyond the usual size are not possible. Abbe Pincot has for several years maintained that he has bees of unusual size, reared in cells larger than normal. To be sure, his statement is not universally accepted; indeed, it has been strongly opposed, so that pages have been occupied in the discussion. At the same time, it is true that a good many foundation-presses have been distributed in Europe making cells larger than the common size. Yet I do not remember to have seen it claimed that any one else had succeeded in rearing larger bees in these cells of larger size.

I have, however, had indubitable proof that bees above the usual size can be reared, because *they have been reared*. Some years ago a Florida physician, whose name I do not now recall, sent me a queen with a few workers, and pieces of drone and worker comb. The difference in the size of the bees was not so marked, but the larger size of the cells in the comb was very striking—possibly because it is easier to measure cells than bees. As I now recall it, the worker-cells were in the neighborhood of the size of ordinary drone-cells, and the drone-cells

correspondingly larger. I don't see how it could be possible that there was any fake in the case. I think any experienced beekeeper would have said that the combs were indisputably built by the bees.

I do not know by what process these bees were obtained, nor do I know whether they are yet in existence. The queen I received was put upon ordinary worker-comb, and of course her progeny were of the usual size. Some one will ask why I didn't put her on drone-comb. I didn't know enough. But the fact remains that, by whatever means obtained, bees of unusual size are possible.

Granted that we may have enlarged bees, there remains the question as to the gain. Will larger bees fly faster or further? Not at all certain; indeed, it may be the other way. A bantam is a better flier than a Buff Cochin. A larger bee should have a larger honey-sac. That might or might not be an advantage. But surely there would be advantage in the greater tongue-length of larger bees, if that greater length should secure from red clover the treasures from which our common bees are now barred. That still leaves the question whether it is better to work for larger tongues or smaller blossoms. But that's another story.

The matter stands in this way: Larger

bees are possible, for larger bees have been. It is not impossible that the way to get them is through larger cells—perhaps drone-cells. To be sure, a larger shoe will not breed a larger foot; but it is possible that a bee is

not the same as a foot. A bigger bee may be no gain; and, again, it may be. At any rate, Mr. Calcutt's efforts are interesting, and one cannot but wish him success.

C. C. MILLER.

A POWER EXTRACTING-OUTFIT AT LAST

BY ELMER HUTCHINSON

It is now more than thirty years since I formed a partnership with my late brother, W. Z. Hutchinson, and began keeping bees. At that time we had a Novice two-frame honey-extractor. We also had a large foot-power buzz-saw with which we used to cut out the most of our bee-supplies. Sometimes when resting from the arduous task of running it we used to say, "If we only had a small engine to run it, what a lot of hard work it would save us!" I do not remember whether gasoline-engines were in use then or not, but I think they were; but they were not a very reliable source of power at that time. Certainly no one had yet thought of using one to turn an extractor.

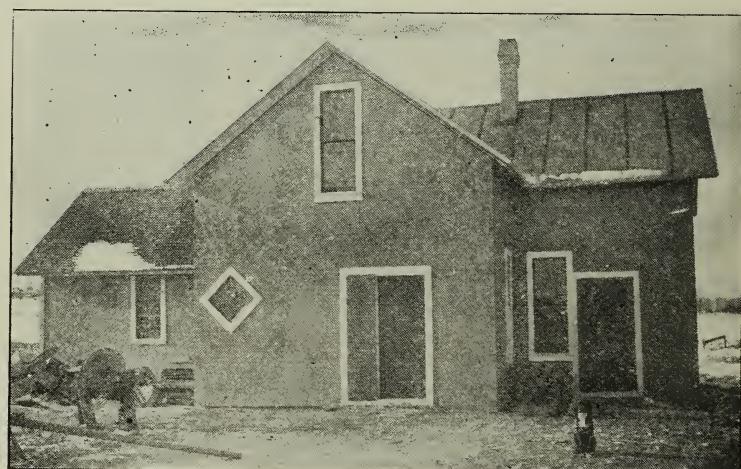
At that time the production of extracted honey was not the extensive business that it now is, most of the honey produced then being sold in the comb. There were no ball-bearing reversible extractors and honey-pumps, driven by power; no steam-heated honey-knives, no Porter bee-escapes, no queen-excluding honey-boards, and last, but not least, there was no market for extracted honey in large lots at paying prices.

When my brother and I started keeping bees in the raspberry regions of Northern Michigan we intended to get an eight-frame extractor and a small engine to run it that we could move from one yard to another; and had not his death occurred we would have bought the outfit the following year. After his death I bought his interest in the bees and fixtures we had here in the North, and that delayed my getting a power outfit for two years.

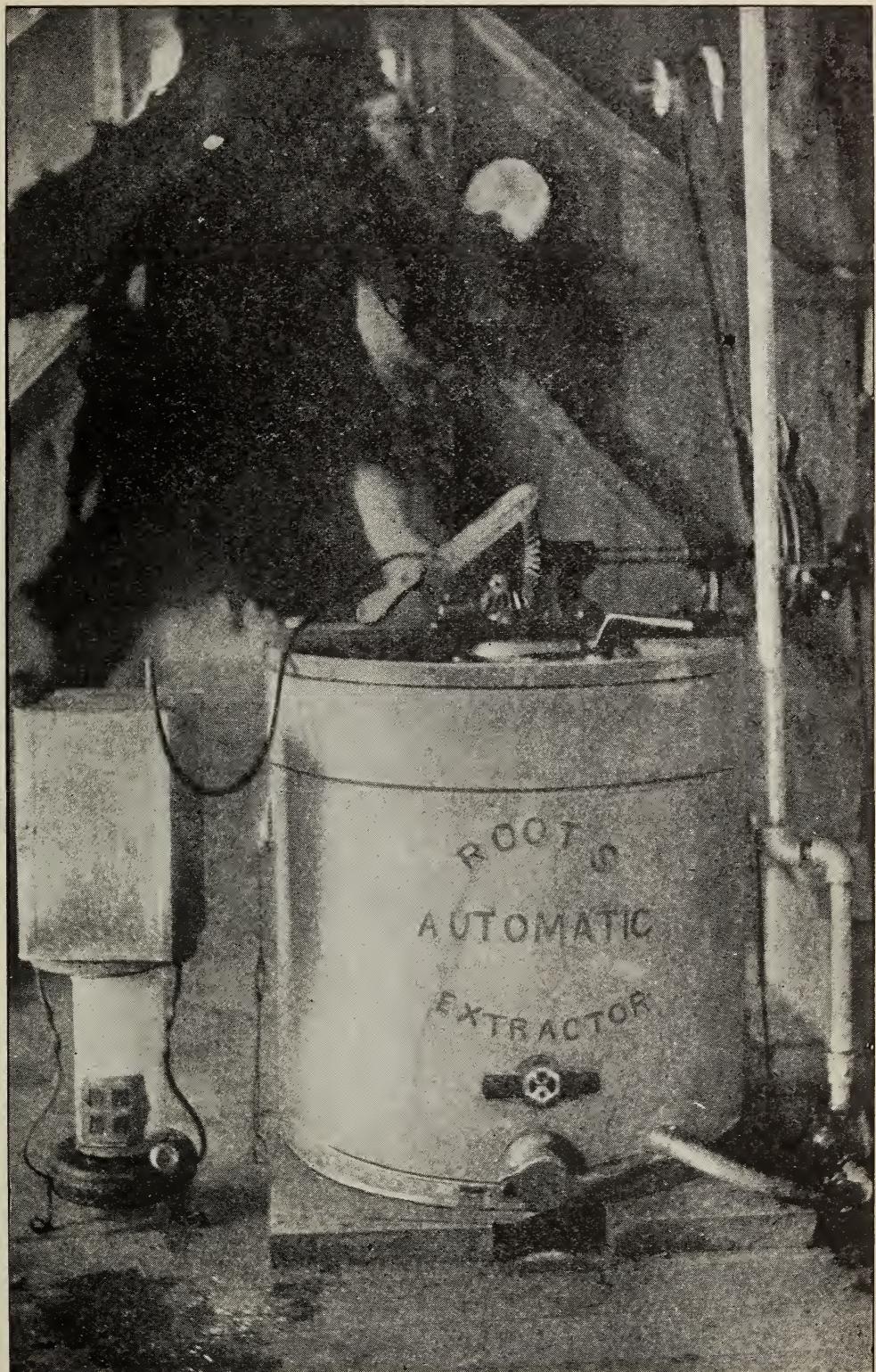
Last winter we were clearing off a piece of land. There was quite a lot of beech and maple timber on it that would make good firewood, which we cut in log lengths and piled upon skids. The ques-

tion then arose as to how to get it cut into stove lengths. A neighbor had an old rattle-trap machine for sawing wood, and an old nearly worn-out gasoline-engine. I studied on the question for some time as to whether to get him to saw it or buy an outfit of my own. I finally decided to hire it cut, moved his machinery over, and went at it. When his engine would run, something generally ailed the sawing-machine, and when we would get that fixed, then the engine would balk. It cost me 50 cts. a cord to get that wood blocked off stove length.

Well, the idea of owning an engine had become fixed in my mind, and, like Banquo's ghost, it would not down. So I began sending for engine catalogs. I believe I wrote to every firm in the United States that makes gasoline-engines, and I put in the rest of the winter studying catalogs and talking with agents who had been sent to try and sell me an engine. I wanted one that would run my extractor and honey-pump, buzz-saw in the shop, pump water, cut wood, or do any kind of work I wanted done. I finally decided on a four horse-power four-cycle engine that could be run on kerosene, thus saving half the cost for fuel. The only difference there is between this engine and a regular gasoline-engine is that there is a small tank in front on the



Elmer Hutchinson's plant. Left wing, honey and extracting room; central part, shop; right wing, well-house and engine-room.



Hutchinson's steam knife, boiler, honey-extractor, and pump, belted to pulley on the line shaft.

oil-engine to put gasoline in to start it with. The engine gives perfect satisfaction, and does splendid work, running as steadily and

regularly as a clock all day, with no attention whatever except an occasional oiling. A gallon of kerosene will last as long as a

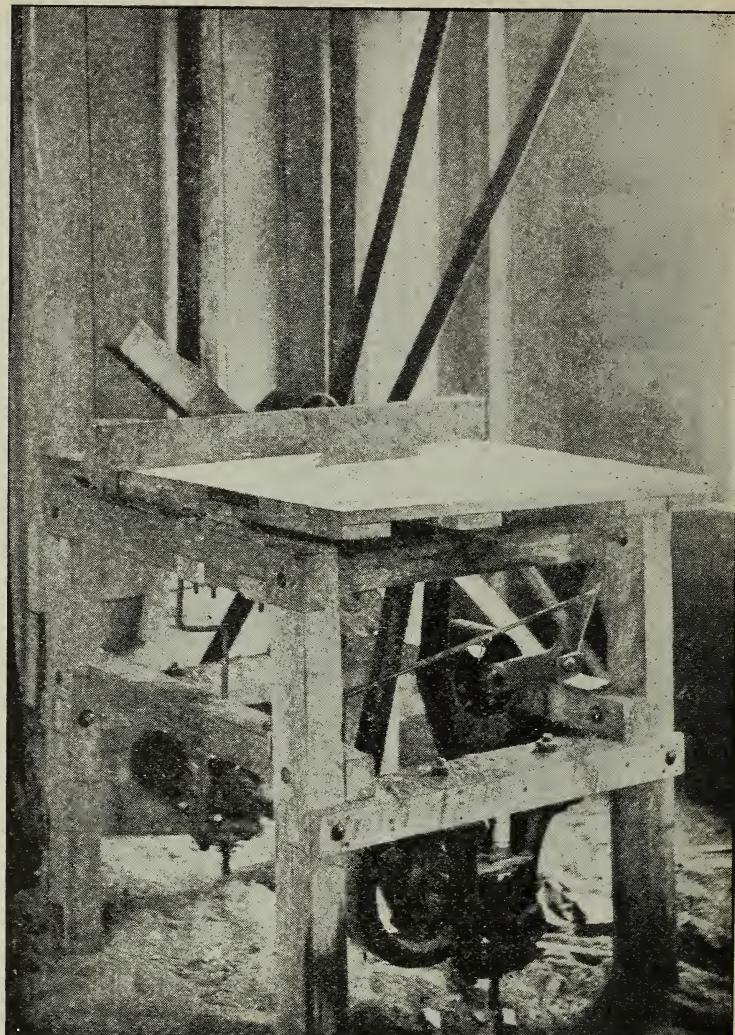
gallon of gasoline, and gives as much power. The only trouble in using kerosene, that I have found, is that the electric igniter has to be cleaned somewhat often. That is a short job, but it is a dirty one.

If I were going to buy a small engine, a two - horse - power or smaller, I would get one to run on gasoline. The extra cost in running one of this size on gasoline would not amount to much, for it would use but a gallon or so a day; and for a very small engine I believe the gasoline would give better service. But from a three-horse-power up, there is quite a saving on the fuel bill in favor of kerosene; and after you have learned to run one it gives as good service as one does run on gasoline. My four-horse-power engine gives sufficient power to cut eight cords of stove wood per hour from green hardwood poles if they do not exceed 8 or 9 inches in diameter, and I can rip pine lumber for frames as fast as I can shove it through.

After buying the engine I had to have more shop room. I had a honey-house 14 x 16 feet. Last summer I built on another part 16 x 24 feet for a shop; and on one side of that a building 10 x 16 feet was erected for an engine and well-house, all two stories high, the upper story being used for storage room.

The new parts have cement floors, and make an ideal place to store honey on after it is canned ready to ship. In the shop I have a work-bench in one corner, a buzz-saw in another corner, and a large box stove that makes a dandy place to render wax. If I spill a little on the floor, there is no damage done.

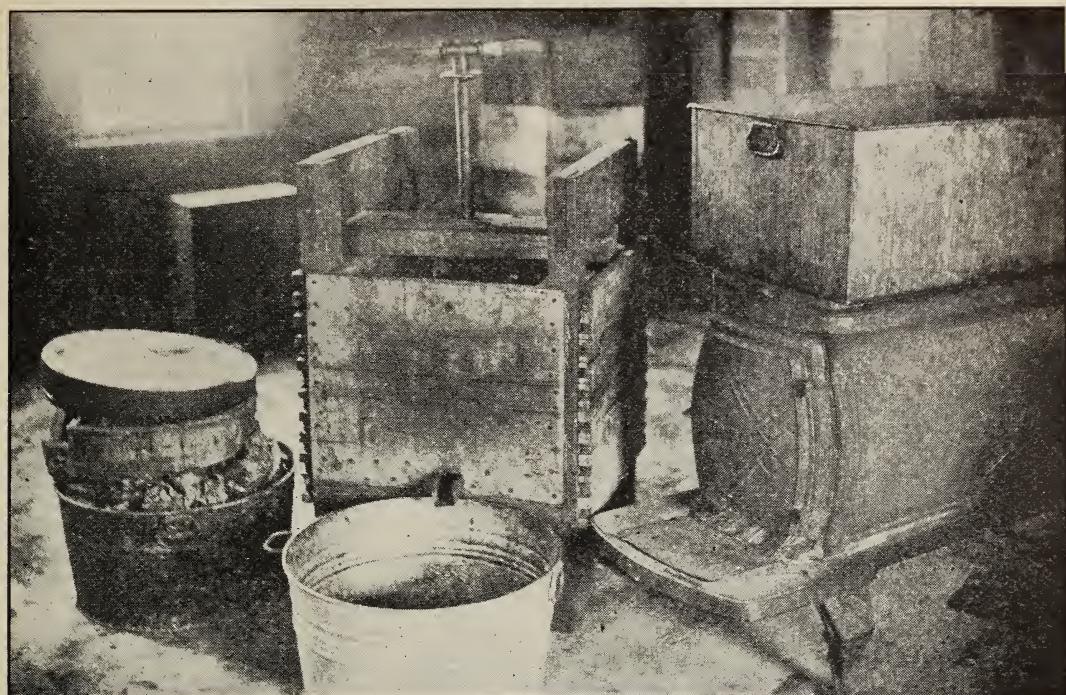
The older building I use for an extracting-room. The extractor and honey-pump are fastened to the floor, and are left there the year round. When I want to start extracting, all I have to do is to start the



Home-made saw.

engine, slip on the belt, and off we go. There is a line shaft running from the engine-room through the shop into the extracting room, and all the machinery is run from that. I think it gives a more steady motion than it does when the engine is belted direct to the machine. There is a tank, at one side of the extractor, that will hold 4000 lbs. of honey. The honey is strained through a cheese-cloth strainer, and allowed to stand a week or more before it is drawn off in cans. Beekeepers who can their honey as fast as it is extracted would be surprised to see the amount of scum that will rise to the top when it is allowed to stand a few days before being canned.

My buzz-saw I made myself at a cost of about \$14.00 for the materials, including four saws and the belting. I also made my wax-press. The pressure is applied by means of an iron bench-vise screw. I can get about



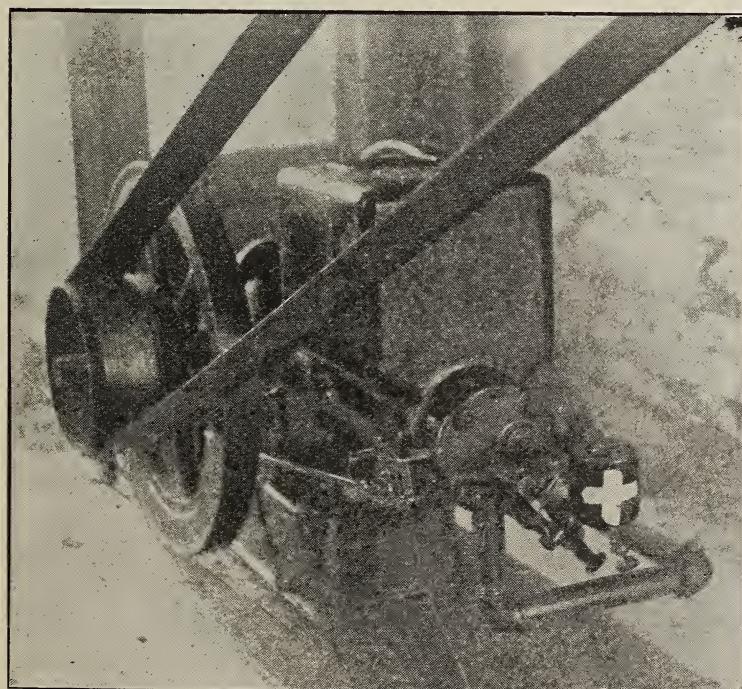
Home-made wax-press with tank on stove for melting old combs and cappings.

2½ lbs. of wax from ten old L. combs, so I don't think I leave very much wax in the slumgum.

At the close of the raspberry-honey harvest we took the honey off and stored it in the bee-cellars, so the bees could not mix

buckwheat honey with it. It was late in October when I finished my new building, got the line-shaft up, and the engine and machinery installed. Then we hauled the honey and piled it up in the shop, built a fire in the stove, and warmed it up a little, then started extracting. As I turned on the power and stood watching the extractor-reel spinning like a top, rapidly throwing out the thick waxy honey, my dream of years had come to pass. About the first thought that came to my mind was, "What a lot of honey we have left sticking to the combs! what a lot of hard work we have done that could all have been saved if we had only bought a power outfit years ago!"

I am already longing for next summer to come, so we can use our new outfit again. The beekeeper who has a steam-heated uncapping-knife, a power outfit, always includ-



Four-horse power engine that uses kerosene for fuel. The white cross indicates auxiliary tank holding gasoline for use in starting.

ing a honey-pump, and who cannot enjoy himself until he just aches using them, had better change his business. But laying aside the pleasure of using such an outfit, it is a money-saving proposition to own one. I have seen combs extracted by hand power that I know had more than two pounds of honey left in the combs of each super that could have been emptied clean, and in less time, with a power outfit. For the person who cannot get help, it is almost a necessity. I ran it alone awhile one day, did the uncapping, tending extractor, and all, and extracted at the rate of more than 300 lbs. an hour, and my extractor is only a four-frame one. I hope to have an eight-frame outfit next summer. We had every thing in perfect running order before we started extracting. The pulleys were all lined up perfectly. I spent more than three hours in getting the honey-pump fastened down and lined up to suit me; but when we did start, every thing worked well. The belt

slipping on the honey-pump was the only trouble we had; but a little belt-dressing quickly ended that.

I wish to say to all beekeepers who produce extracted honey, if you never saw a power outfit at work, go somewhere next summer where they have one, and see it work. My guess is, that you will soon own one yourself, even if you have to mortgage your automobile to pay for it. Knowing what I do now, if I had only 6000 lbs. of honey to extract, I would have a power outfit.

The most of my beekeeping life I have been in partnership in some form or other with my late brother, W. Z. Hutchinson, and through all the pleasure in using our new plant, there comes a feeling of sadness that he is not here to use it with me. His one great hobby, aside from bees, was machinery.

Pioneer, Mich.

BEES AND HORTICULTURE

In looking over our large stock of old bee-books we came across one in French entitled "Bees and Apiculture," written by Mr. A. de Frariere, and published in Paris in 1855. The advanced position taken by the author causes the book to seem almost as if published within a year. He was a successful and scientific beekeeper in his day, and has left a little work which should no longer be allowed to "waste its sweetness on the desert air." The chapter on the fertilization of fruit-blossoms by bees is so graphically given that we have translated it entire for the pleasure of our readers. It will be noted that the author seems to have had the impression that the promiscuous mixing of pollen on different branches and even different trees would have a tendency to cause the fruit to degenerate; but, as shown on page 229, March 15, this is a great advantage, especially when the pollen of one kind of apple is mingled with that from an entirely different kind. The writer not only shows that the bees do not do any damage to the blossoms, but confer a great benefit on them by fertilizing them.—ED.

One of the prejudices (and they are numerous in France) which retard the development of apiculture in some countries is the belief that bees injure fruit-trees. As I have already given one instance of the kind I will risk a second one, in exact conformity to the truth, in order to dispel this erroneous opinion.

One of my friends, whose fine apiary I had just visited, told me one day of the opposition which he encountered at the hands of one of his farm-tenants, in setting out some hives at a point on his land that seemed very favorable for the bees.

"Would you believe it," he said to me, "that our peasants imagine very seriously that the bees are partly the cause of the bad crops from our fruit-trees? and their reasons for it are not lacking. I am convinced they are in error; but I have made efforts to enlighten them on this subject. To-morrow you will hear my tenant talk. You combat this prejudice, and perhaps you will have better success than I. I shall be able to use my authority; but I fear that, pushed to the wall, he will not try to prove

to me in one way or the other that I was wrong. The country people are very rustic."

It was only a few days after that when the weather permitted the realization of this plan. On that day the sun marched out victoriously into a cloudless sky. The peach, apricot, plum, and other trees, the blooming of which had been retarded by the cold days of the preceding month, displayed a thousand blossoms which spread out under its beneficent rays. Finally, all Nature was adorned as if she had invited all creatures to a splendid feast. The happy little birds twittered as they leaped from branch to branch, and myriads of insects hummed joyously, while the plants seemed to show with pride the limpid pearls which the dew had deposited on their growing leaves—a decoration of which the sun would soon deprive them.

The farm to which Mr. Sarrazin led me was situated at the extremity of a village which enjoyed the privilege of furnishing the most beautiful fruits, which were greatly admired in the market of Orleans. The farmer himself raised a considerable amount

of produce in his orchards, and was very proud of being reckoned among the most skillful horticulturists of the country.

"Good morning, father Philip," cried Mr. Sarrazin, as he saw a man turned with his back to the road, seemingly plunged in a sort of ecstasy at the view of a shower of white blossoms falling from the tops of the plum-trees. "Good morning! how goes it to-day?"

The interrupted man turned around suddenly, and saluted the two visitors.

"What are you doing there, father Philip—admiring your plum-trees as if estimating the crop in advance?"

"Ah! pardon me. I was thinking of you at this moment. I said to myself, as I watched the blossoms fall like the snow, that I had been too sagacious to allow myself to be led astray by your fine-spun reasoning on the subject of insects. Just listen."

He pointed at the blossoms with which the ground was whitened, and the bees humming on the trees.

"There! I have the pleasure," he continued, "of convincing you that these little animals injure our crops. See what happens, although almost nobody in the village has bees. Remember, now, if we have all of them, there will not remain a plum nor any fruit of any kind on our trees."

"Do you believe that, father Philip?"

"Do I believe it? Why, see for yourself, sir. I am only an ignoramus; but it does not require much science to understand what one can see with his own eyes. What do you see at this moment? Look, now—look!"

We were just then at the foot of one of the most beautiful plum-trees in the orchard. Hundreds of bees were struggling with each other on the beautiful blossoms, and even seemed to dispute their possession. At times there could be seen two or three bees suspended on the same blossom; and this, yielding to the unwonted weight, became detached, and dragged in its fall the lively little insects, as the farmer said.

Mr. Sarrazin waited for me to take up the argument as if he himself had been convinced. The farmer manifested his satisfaction by assuming a certain air of triumph over an adversary more skillful than himself.

"Let us examine carefully and see whether father Philip is right," Mr. Sarrazin said at last; "and if such is the case I will admit frankly, and there will be no further talk about putting bees on these premises."

I had had time to make my observations;

but I thought, and justly, that the only way to convince father Philip was to demonstrate the truth by visible evidence. Seizing a branch loaded with blossoms I explained very clearly that the bees could be accused of pulling down, a few moments before, only such blossoms as never could have attained maturity.

"Thus, so far from being injurious to your fruit-trees, the bees seem designed by Providence for one particular work. See," I added, showing him a large shaggy drone, six times larger than a common bee, which was hanging to the blossoms, but which, nevertheless, did not fall under the extra weight. I called father Philip's attention to the fact that, among the blossoms forming the same bouquet, one can rarely find more than one or two, rarely three, the peduncles of which are firmly fastened to the branch; the others, evidently not being designed for fertilization, naturally fall soon after the time of blooming. Those that resist this first crisis are detached later. After fertilization has begun, they exhaust needlessly a part of the sap designed for the young fruits which alone are capable of acquiring full growth.

The farmer was what might be called a candid man, and possessed of good sense. He did not hesitate to admit that my observations were just. He agreed graciously that, if all the blossoms were to become fertilized, the exhausted trees would perish, or else it would be years before they would be in condition to bear again.

Mr. Sarrazin was charmed to see his farmer-tenant of such a good disposition. He confirmed enthusiastically the last considerations, which he had even made himself, and which entirely exonerated the bees of the things of which they had been unjustly accused.

"There is still another thing," I added, "that militates in favor of insects nourished by honey and pollen; and that is, they are charged with the important mission of assisting fertilization of blossoms. When one bee alights on one blossom, and seeks to penetrate it to gain access to the honey (or nectar) deposited there, it occasions an agitation or shock, which causes something like a white cloud to arise, and this is the dust contained in the stamens. The pistil receives it, and thus fecundation is effected. In flying from blossom to blossom, one can easily believe that the bees favor somewhat the degeneracy of species; but that is nothing. Aside from a few exceptional cases, these insects, obeying a law of Providence, do not get a full load from a blossom of a

species different from the one they have just quit."

The farmer said he would no longer oppose Mr. Sarrazin's plan.

"And you will act wisely," added the latter. "Besides, is it not right for you to profit from the honey on your own trees, which neighboring bees will suck from your blossoms when you are not able to prevent

them from doing so? You are too good a man to let it all go to others."

This sally caused the man to laugh; and he was convinced when, at the swarming season, the bees gave him six hivefuls of honey by way of surplus.

The considerations I have just adduced will suffice to prove the benefits of bees to horticulture.

AN AUSTRALIAN HUSTLER

BY MAJOR SHALLARD

I am sending a photo of my son Phil with a load-up. He is a "tiger to work," "though I says it as shouldn't," and there being no horses available at the time, and the goods having to go to another farm four miles away, over a very hilly road, he packed them on to his bike and carried them. The load consisted of a wheel-barrow, ten yards of wire cloth, camp-kettle, hurricane lamp, Jumbo smoker, 14 lbs. nails, 5 lbs. galvan-

ized screws and washers; hammer, tomahawk, brace, and six bits; two hand-saws, food for two days, and a change of clothes. His working hours are from as soon as he can see until he can't. Needless to say, he is working for himself managing my Bathurst farms on shares.

S. Woodburn, N. S. W., Aus., Feb. 8.

[The following letter is from the "Hustler" himself.—ED.]

AN AVERAGE OF OVER 200 POUNDS FOR 800 COLONIES

BY PHIL SHALLARD

On page 177, March 15, you say the Western honey-producers' annual output is 200,000 lbs. Are the crops in the States so small as to aggregate only this amount for an association, or is it a small association? One apiarist in this district took 201,600 lbs. for his biggest yield from between 800 and 900 colonies, and he never expects less than 112,000 lbs. These last two seasons have brought him down somewhat, though. Last season he took only something like 44,800 lbs., and so far as I know he has not extracted at all this season.

The best honey is worth from 6 to 8 cents here, according to the crops. It will average 7 cents, whereas your price is much higher, so that you could manage with smaller crops. This is for extracted honey. People here don't care for comb honey. They seem to think the wax will kill them, and consequently sections, 14 oz., are sold for 12 cents to 14 cents each retail.

The nearest approach to pollen that we can get is pea-flour. It is rather bitter to taste, but usually the bees take it well when natural pollen is scarce, and seem to do middling well on it.

Sac brood has made its appearance here. I had it in an out-apiary last season; and as I had never seen foul brood I at first mistook this for it. I had only two colonies affected last season; but this season there

are a dozen with it, so it's on the increase. I notice it only where the colonies are weak and poor honey-gatherers. It seems to come only in the fall of the season.

THE SMOKE METHOD OF INTRODUCING OLD IN AUSTRALIA.

On page 876, Dec. 15, you say a new method of introducing queens was brought to light by Arthur C. Miller. This method my father (Major Shallard) has been using ever since I can remember, and I was under the impression that every one knew of it. He also practiced smoking the colonies once a week with an ordinary smoker to cure paralysis; and although it never cured it, it used to steady the disease and keep it in a dormant state.

WATER MADE TROUBLE WHEN MOVING BEES.

I have read much about shipping bees without loss and keeping the brood in good order while in transit with water. Will you please explain how this is done? Fourteen months ago I moved 80 colonies 100 miles by rail. They were all two-story, and not very strong. They had a wire-gauze frame over the top of each colony, with a $\frac{5}{8}$ -inch space between it and the top-bars. The entrances were closed with wire gauze. They were packed one layer deep on the floors (which were covered with straw) of two louvre vans, and bags of straw jammed



Phil Shallard's substitute for an auto truck.

between the ends of the hives and the walls of the vans. The pick-up train took the two vans in tow at 1 A. M., and after going 60 miles it was 8:30 A. M. At this stop the assistant and myself gave the bees water by sprinkling it over the wire screens. The bees drank very greedily of it. We finished the journey by 12:30 P. M., and gave the bees more water. Owing to the lack of carriers the bees could not be unloaded and carted to the home farm till the second night of their arrival at the goods yard. They were watered once again before they left the vans. When the bees started to fly next morning they carted out one double handful, on an average, of dead bees. The weather was extremely hot, and the small black ants attacked a couple of the weakest colonies, and they swarmed out within two hours of when they started to fly. I did not know the ants were at them.

Last Christmas eve I moved 12 single stories on the same journey, but these had no water *en route* till they were unloaded into the goods-shed at 1 P. M. Then I sprinkled them with water and carted them that afternoon to the home apiary, 12 miles from the railway station. Next morning I looked to see how they had stood the trip, and found one colony with 90 per cent of the bees dead in it (this was the strongest, and had received the most water); and the meat-

ants (iron-stone ants) had paralyzed the rest. In the other 11 colonies I found a large percentage of the bees dead. I formed a good many nuclei last week, and filled one side of a drone comb with water for each of them. One nucleus seemed to generate a lot of heat in the hive, and the bees died. The combs and dead bees were all clammy and damp as though the hive had been filled with steam. The nuclei were all closed, and made bee-tight, so that the bees would not all return to the parent hive when released, and perhaps this caused one of them to suffocate. The heat this summer has been ranging to 106 degrees with hot winds. This climate is subject to very swift weather-changes. The altitude is somewhere about 2400 ft. above sea-level. There is no scrub, no clover, and no lucerne within range of 90 per cent of the apiarists here, and they must depend entirely on bush timber for the crop. When it comes drouthy weather they get but a small crop, and the last two seasons have been very hot and dry, so that not only myself but others have not extracted a single pound of honey. There is plenty of bloom, but no honey in it, and I guess it would puzzle almost any one to get a crop under these conditions.

Three years ago I moved 300 colonies for my father on the north coast, early in the spring, with a wagon and horses. These



This mammoth swarm was the product of one queen on 24 combs. The swarm issued June 11, 1913. From J. W. Davidson, Yorktown, Ind.

bees were all carted in the night, and the longest distance was 22 miles and the shortest 12 miles. Some of these colonies were sprinkled with water (not more than a small cupful), but those that did not receive any water I always noticed came through the best. In this instance, also, the bees seemed to have died through suffocation caused by the water, as they were clammy and damp.

Eglinton, N. S. W., Feb. 10.

[We are of the opinion that you gave too much water. If the water is put directly on the screen it must be applied in the form of a fine spray so that it will not drench the bees, and not too much should be given at a time. We have tried all ways of supplying water, and like the cloth plan the best. That is, we roll a long cloth over the row of screened hives and sprinkle the cloth. The bees reach through the wire screen to get the moisture from the wet cloth.—Ed.]

BEEES GET HONEY FROM RED CLOVER WHEN IT IS DWARFED BY DROUGHT

BY B. A. MANLY

On page 125, Feb. 15, Dr. Miller refers to the "red-clover strain of bees." From the little experience that I have had I am convinced that it is not the difference in bees that enables them to work on red clover, but a matter of weather conditions. In 1910 we had a summer in this State without rain. It was so dry in midsummer that most of the vegetation was dried up. The early honey-flow was fair, and then it seemed as if the bees had nothing to do. In August I was sick; and as I sat on the back porch I noticed the children would occasionally leave the honey-house door ajar. I warned them that they would find it full of bees. But the

bees did not come; and as I thought I knew that there was nothing for them to get in the field I could not understand it. Well, I walked down to the apiary on a day as hot and dry as it often gets to be, and to my surprise the bees were busy, giving no heed to any thing but their work, and they were all going in one direction, which happened to be toward my place of business—the lumber and grain office. The next day I went to the office; and while there I thought I would see if I could find any thing of these busy bees. Just beyond the lumber-shed was a forty-acre field of red clover.

The clover was badly dwarfed by the long-continued drouth; but the bloom was there, and literally covered with bees. The result of that season's work was 200 lbs. per colony (had no swarm) of as fine honey as I have ever seen.

Since then I have made close observation, and have not seen bees work on red clover except when the weather was very dry and

the clover badly dwarfed. For instance, the latter part of last summer was extremely dry, and we got a good crop of red-clover honey.

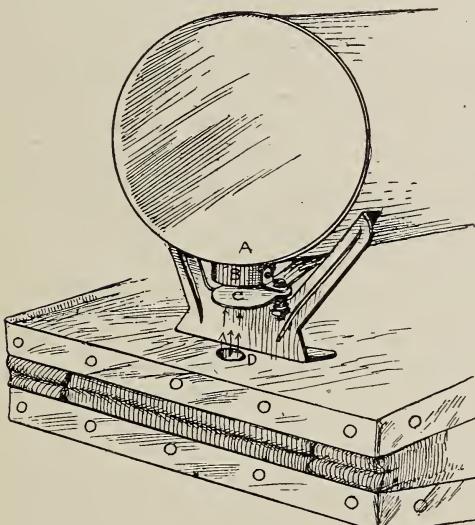
Now, from this experience I am convinced that it takes a dwarfed condition of red clover to make it possible for bees to reach the nectar in it.

Milo, Iowa.

A SELF-EXTINGUISHING SMOKER

BY F. C. MYER

This is a smoker which can be extinguished when through using by simply closing the blast-tube with a slide. This closes the lower part of the smoker; and as the fire generates carbon dioxide (this gas being heavier than air), it settles to the bottom around the fire and extinguishes it in about three minutes. The most inflammable material will smother very quickly, and without leaving a single spark when its air supply is shut off.



The closing apparatus is a simple iron slide about the size and thickness of a five-cent piece, and slides over the outer end of the blast-tube, working in the same way as the shut-off on a molasses-barrel or extractor. This arrangement will not clog up with soot or the like, and should be as lasting and serviceable as the rest of the smoker. It is not absolutely air-tight, and does not need to be so. When perfectly air-tight the fire is extinguished within one minute; but this is not necessary. If extinguished in several minutes it is quick enough, as the main part of the fire is out in a fraction of this time.

Usually when a smoker is put away without throwing out the fuel or putting it out, it will burn for several hours. This, when done time after time, will wear or rust out a tin-body smoker much quicker, and besides, cause danger of fire. The saving of fuel also amounts to a good deal, as a person will often have only a few minutes' work with the smoker, or will have added a new lot of fuel just before quitting. It would be a waste to throw it away, and yet it is some trouble to take it out and carefully put out every last spark; and if every spark is not put out, it will likely be burning away full blast in half an hour.

During a rush, such as in extracting time, when through for the day and everybody is sticky and tired, a little convenience of this kind helps. This might be especially so for hired help, who will sometimes let things go rather than go to any extra trouble to be careful.

I have found the apparatus to be quick, safe, and economical, and a great convenience.

Lowell, Ark.

[We recall that several years ago one of the old-time smokers—possibly the Quinby—was equipped with a slide or damper to close the draft in order to put out the fire and save the fuel. The idea has some merit, for the charcoal, or unburnt fuel, thus retained in the smoker, is kept dry and in condition to light easily with a match the next time the smoker is used.

As Mr. Myer suggested in his letter to us, any one may try the plan by inserting a cork in the blast-tube. It occurs to us that the use of a cork or plug attached to a leg of the smoker by a string a couple of inches long would be a very simple way to accomplish the same results. It would have the advantage of fitting rather more tightly than the slide, and would not take a great deal more time to put it in place than to turn the slide.—Ed.]

DIRECT INTRODUCTION OF QUEENS BY THE SMOKE PLAN

BY ARTHUR C. MILLER

The direct introduction of queens is the oldest method known. Introduction by caging is of comparatively recent origin, but by whom suggested I do not know. Various forms of each method have been used from time to time with different degrees of success, the cage plan prevailing probably because the manufacturers of mailing-cages sent them out with instructions for their use in introducing, and the average individual keeps to the beaten way.

Réaumur, I believe, was the first to describe a method of direct introduction, though probably not the first to use such. Little change was made in the direct method until Simmins brought out his fasting plan. Running queens into nuclei by using tobacco smoke was of about the same date, being particularly championed by Henry Alley, but not for use with full colonies. He used, advocated, and described cage plans for such. At the same time, tobacco smoke was urged for uniting bees, queen introduction, and for handling cross bees; but for the successful introducing of queens to full colonies it failed to fulfill expectations. Its use was based on a theory of odor, the tobacco being supposed to scent the queen and bees alike. How the odor theory originated is a mystery. Certainly no proof has been furnished that caged queens acquire any particular odor. It was affirmed and accepted that they did, and that apparently settled it: But *proof* is yet to be presented.

Even Mr. Simmins, in his successful method by fasting, could not free himself from the idea that odor is an important factor, for he emphasized the use of a fresh cage for each queen. Following his plan I introduced many queens, using a tubular wire-cloth cage and scalding it after use. That became tiresome, and I used it for several queens without such deodorizing, and found I was as successful as before, and after awhile I quite got over my belief in odor being a factor. But it was a good deal of a nuisance, having to be on hand at dusk to run in queens (Simmins' instructions), so I gradually dropped the plan, and used the cage plan with its varying results.

In conversation with Mr. Alley he was quite positive that it was the odor of the tobacco smoke which insured the safe introduction of virgin queens to his little nuclei, and it was to confine that smoke in the small hives that he plugged the entrance with a leaf, using such because over night it would wilt and release the bees in the morning without any thought on his part. Later I

learned that virgin queens were usually lost by their running out when not confined, rather than by trouble from the bees, so Mr. Alley's leaf rather than the tobacco odor was the reason for his success in introducing virgins to nuclei.

These and sundry other things again led me to try introducing queens by direct methods, and it was an easy step to combine the principles of Simmins' fasting plan and Alley's tobacco smoke and confining plan, and apply it to full colonies in the daytime. The fasting part got shortened to the point where it vanished, and plain smoke was used instead of tobacco. The fasting was a bother and "died from neglect," and not always having tobacco I used whatever fuel was handy (the tobacco was used because supposed to be more potent in subduing the bees); and so by degrees with many breaks, stops, and backward steps the present direct method of introduction by smoke and confinement was evolved.

This plan as now used is as follows: The entrance is reduced to about an inch with any convenient material, such as grass, leaves, rags, or blocks, and then a few (two to four) puffs of smoke are driven into the hive, and the last inch of the entrance is closed. The bees are soon "roaring" loudly. To the novice it may be well to explain that "roaring" is the loud hum of "distress" very different and much louder than any normal humming of the bees. As soon as they are roaring well the inch plug is removed, the queen is run in, followed by just enough smoke to hurry her along and keep the bees from running out and the entrance is plugged again. In a few minutes, usually five to ten, the small plug is removed and the bees are allowed to ventilate. The whole entrance is not opened at first, or a mass of the bees would rush out, and perhaps the queen with them, and at best it makes too much commotion. After the bees have ventilated and quieted down, the rest of the closing material is removed. This is the method in its simplest terms; but there are several modifying factors which, if understood in advance, will save bother and puzzling.

The first is the smoke. To one who is accustomed to using a large-sized smoker with good fuel, "two to four puffs" means one thing, while to the man with a small, poor, wheezy affair, and poor fuel, it is something else. To make the matter of smoke more plain, I took a good four-inch smoker, loaded it with old burlap, none too

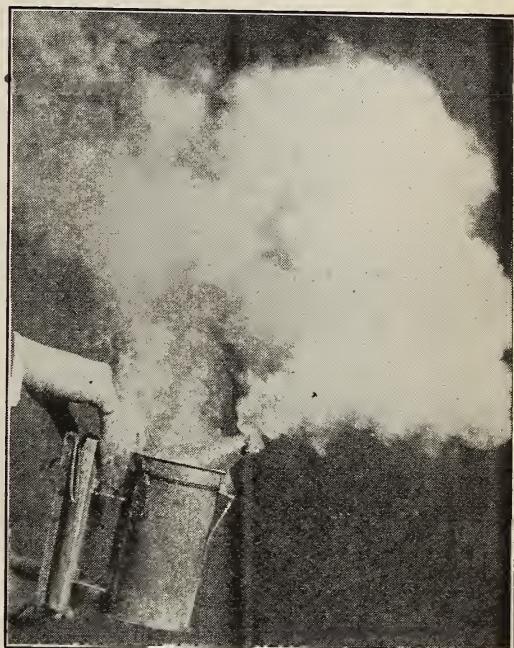
dry, got it going properly, and had it photographed. The illustration shows a cloud of soft, white, cool, but very "choky" smoke, and two to three puffs of such smoke driven well into the hive will make the biggest colony "roar"—not hard puffs like the one pictured, but sufficient to make it go well into the hive. There is rather more danger of giving too much smoke than too little. Dry, thin, hot smoke is likely to injure or burn the bees—often makes them quite cross, and does not work nearly as well as the other sort. In smoking the bees, if the entrance is but about $\frac{3}{8}$ inch high it is not easy to drive the smoke well into the hive; and in such cases it is well to lift the cover a little, send two or three puffs under it, close it quickly, and then give a couple of puffs at the entrance. For years I have used nothing less than an inch-high entrance; hence I previously failed to write of the difficulty of proper smoking where a small entrance was used.

The next factor is the colony condition. It makes no difference what that is so long as it is quiet. It may have a queen, have been just dequeened, have queen-cells in almost any stage, or have laying workers. The new queen will be accepted under any of these conditions. Under the first, she may or may not supplant the reigning queen. That is a separate matter, and will be treated more fully further on. Just after dequeening I consider to be the very best time for introducing, *provided* the dequeening was done quietly. With a good strain of bees the deft operator will readily get the old queen with little or no smoke, and when he closes the hive the bees are nearly as quiet as if they had not been disturbed; therefore they respond perfectly to smoking. Such is not the case, however, when a colony is searched through several times, heavily smoked, sifted, etc., as often occurs when looking for black queens, timid queens, small or imperfect ones, or with cross or nervous bees. It is impossible to get bees into the right condition for receiving the queen immediately after such an overhauling. To be sure, one can sometimes drop in a queen or place her on the combs while the hive is open, and the bees still in a turmoil immediately after removing the old queen, if the new queen is fresh from a neighboring hive. The safer way is to close such colonies and let them remain undisturbed until thoroughly quieted, usually about twelve hours, and then follow the prescribed plan.

Another factor of colony condition is food supply. I have found that some persons have tried to run in queens to colonies destitute of stores—robbed out. It can be

done, but is difficult. Give to such a comb of honey or a good feed of syrup, and reduce the entrance so the bees can protect themselves.

The presence of queen-cells is no hindrance except under the following conditions: When cells are about ready to hatch, perhaps the young queen already calling, a good honey-flow and hot, humid weather, then the advent of a queen, particularly if light in eggs, as after a trip in the mails, sometimes precipitates a swarm. That is exceptional, however, the cells usually being destroyed. A virgin escaping from a cell at about the time the queen is introduced may supersede the new queen, though that is rare. But it is not good policy to keep a colony queenless long enough for such conditions to arise.



A smoker in the proper condition, giving a good volume of thick, cool, smoke.

Laying workers are no bother at all when running in queens by the smoke plan, but as a rule a colony infested with laying workers is not worth giving a queen to. It is far better to set such on top of some other colony, giving the bees and queen of the latter the run of both stories for a week, and then separate the two parts, giving a queen to the part without one.

Introducing to nuclei in full-sized hives has not been entirely successful unless the bees were confined to that part of the hive where the combs were, so the queen on entering had to stay among them, and neither they nor she could wander off into the vacant space. I have not had any such

trouble, probably because all my combs are side to the entrance, and all nuclei or small colonies are kept at the front so that a queen on entering passes at once among the bees. Where the frames are the usual way it is probably good practice to use a tight-fitting division-board to restrict the space and then take pains to run the queen in right where the bees are. A tight-fitting division-board is something every beekeeper does not have. I know I have none, and it is not an easy thing to make in a hurry, nor unless one has just the right sort of lumber. But a perfectly satisfactory one may be quickly obtained in the following manner: Take a brood-frame with or without a comb, and wind about it a few times lengthwise a strip of burlap or other bulky cloth which is about as wide as the frame is deep. Push this into the hive, and it will meet all ordinary requirements.

With the smoke method of introduction any queen may be used, from a very young virgin to an old "breeder," and from a hive right at home, or from the mails after a trip half around the globe, but it is poor economy to put a virgin into a full colony. The queen may be put in at the entrance with one's fingers, or run in from the mailing-cage, together with the attendants. They will all be accepted. When running in from the cage, the latter should be placed wire side down or else have the wire well covered to exclude light; otherwise the bees of the

hive may rush into the cage, plugging it tight. I prefer to remove the card covering the wire and place the cage wire side down; then I can hurry the queen and bees out by a gentle whiff of smoke under the cage. Great caution must be exercised when smoking bees in a cage, for they cannot move away from it if it is a trifle too hot, nor successfully ventilate if a suffocating amount is blown in. Use only the most gentle whiffs. If the cage is dark the queen and bees usually pass very quickly into the hive, the commotion therein seeming to hasten their movements. Ordinarily when running in from a cage I push the cage into the entrance (wire down), plug any space which may be above or beside it, and let it alone until I am ready to give the colony its first small outlet. But as I want all queens clipped I usually release the queen indoors, catch and clip her, and then run her in from my hand or from any sort of cage or little box. If the cage has no hole in the ends, it will be necessary to make one with a knife, taking pains not to injure the queen. Do not make the mistake of pushing in the candy end of the cage. This has been done, strange as it may seem.

Providence, R. I.

To be continued

[In Mr. Miller's next contribution he discusses the reasons why the smoke method is successful, requeening without dequeening, etc.—Ed.]

THE ENGLISH SEASON; EARLY THINGS EARLY AND THE SUMMER IN A RUSH

BY G. G. DESMOND

Apart from a rather slow January, and less winter brood than usual, we are having a phenomenally early season in England. Gooseberry blossom, due on the average on March 29, was ready to open on the 10th. Some cold winds checked it, but still it was nearly a fortnight early. Half way through April we got wonderful summer weather, and every thing seemed to come with a rush. The bush fruits were nearly finished, and we had laurel, cherry, plum, pear, apple, horse-chestnut (buckeye), dandelion, in the sort of procession you see at a well-contested horse-race.

With the old beekeepers, a May swarm was the *summum bonum*. This is the rhyme:

A swarm of bees in May
Is worth a load of hay.
A swarm of bees in June
Is worth a silver spoon.
A swarm of bees in July
Is not worth a butterfly.

Cottagers have been spinning yarns of April swarms for a great many years now, without much credence; but this year quite a number of beekeepers, ancient and modern, hived their increase from April 19 onward. I suppose that the date for an old straw hive to swarm is about the same as that of dandelion blossom. Last year we were picking dandelion heads for wine on May 21. This year, May 7 would have been too late, for all the heads had gone to seed.

Tickner Edwardes says that all honeys are outstripped in flavor by a blend of hawthorn and apple. "It is as rare and almost as priceless as the once famous Comet vintages. It is to be had only when the apple blossom and the hawthorn come into full flower together." This year we are having that, and, moreover, have got our bees up to supering strength in time for it. But then we have also at the same time hedge maple and

sycamore, and sycamore nectar is great in quantity and poor in quality.

However, some people will get their apple-hawthorn blend fairly pure; and if it is not well ripened on the hive they will be disappointed with it. At any rate, this medley of blossom is bringing stocks to booming strength for the clovers which will begin to yield before May is out. Sainfoin is the chief of them in some hill districts. The first blooms will be out by the 25th for certain, and that and white clover will crowd our main honey-flow into about six weeks. When June is out we shall be seeing the end of a very fine honey year. Lime (basswood) will have followed clover, and there will be no more definite flow for those who do not go to the moors for heather. But surely such a summer will have another surprise for us with some flood of second blossom. At any rate we shall be able to get our requeening done quite early, and get nuclei plumped up for the winter, and the benefit

of this unusual summer will not be exhausted for some years to come.

The greatest benefit we look for is the removal of Isle-of-Wight disease. I think it is going out under this hot sun. It means almost more than we know who have had apiaries wiped out by the malady itself. Some brother experts have told me that they are astonished at the amount of foul brood that accompanies Isle-of-Wight. I suspect that foul brood has a close connection with it at all times. When a stock dies in the cellar or on its winter stand without any definite symptoms, that is very often due, as Dr. Zander has pointed out, to *Nosema apis* or Isle-of-Wight disease. Other stocks are no doubt weakened by the same malady, and it comes out as foul brood. Some such basal infirmity, if not this very *Nosema apis*, will have to be tackled by Americans as well as Europeans before they get rid of foul brood.

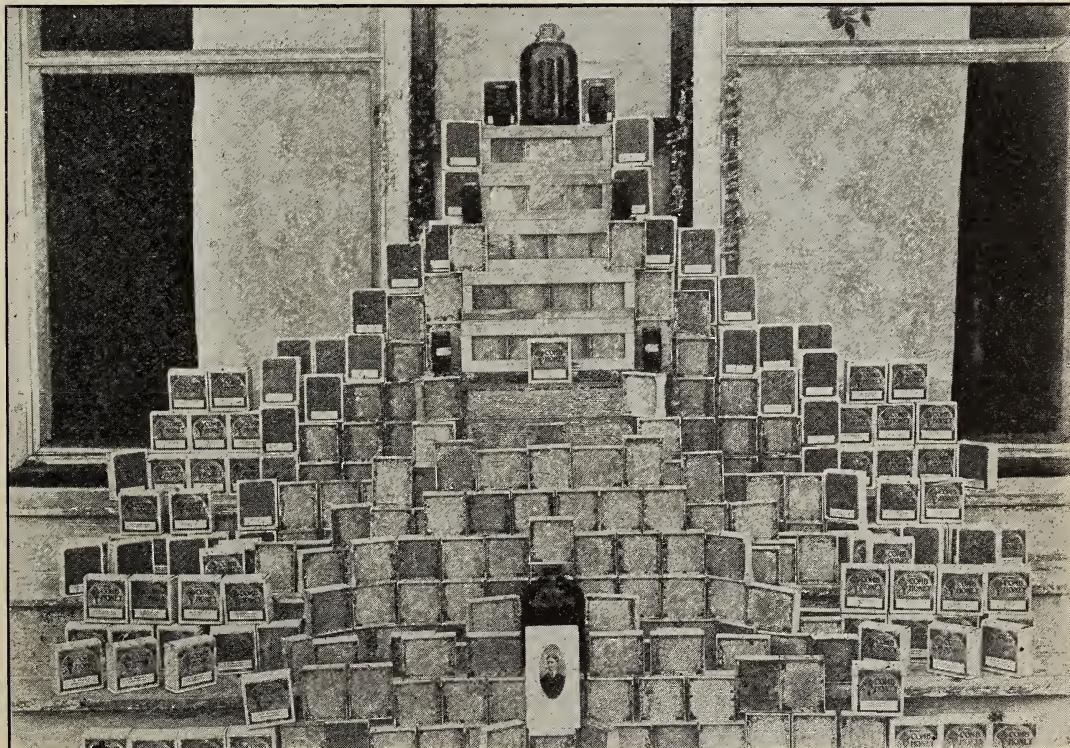
Sheepscombe, Stroud, Glos., Eng.

A 96-POUND AVERAGE FROM COTTON

BY S. W. BOSWELL

I am a "counter-hopper" salesman by trade, and my side lines have been bees, truck-growing, and chickens. This is my third year with bees; and as the A B C says

go into the honey business on the "tip-toe," I have followed its advice and have built up from two to twelve colonies. Next season I will branch a little.



Some of S. W. Boswell's cotton honey.



Lucille Miller, "Before and after taking" (a sting). Lucille is three years old, and a great lover of bees. She has been stung a number of times, but doesn't get scared. She usually says, "Papa, look what the bees did to me." I have a large yard of bees, and she likes to see me work with them.

G. M. MILLER, Danvers, Ill.

There are 2400 acres under cultivation here, all cotton, so you will readily see that cotton is my honey-plant. Well, there are a few fruit-trees scattered around, and a little clover in places that the plow can't reach, that help out in early spring; but if any one were to ask from what source my bees get their nectar I would point with a proud finger to the millions of cotton-blooms.

From my twelve hives last season I took off an average of 96 lbs. of comb honey, and if I were to return all unfinished sections and apply the feeders I feel sure that my colony average would be considerably over 100 lbs. Now, I do not know; but it strikes

me that I have made my bees do pretty well, and the drouth we have had too was against me to a certain extent.

The Danzenbaker is the hive here for the production of comb honey. I have tried other makes, but they all slip a cog somewhere, though every thing is seemingly all right.

I am sending a picture of some of my honey. The picture was taken in June as a booster for Jefferson County, Ark. The strained honey in the picture is some I obtained from leaky and broken sections. The honey shows up a little too dark in the picture.

Corner Stone, Ark.

REQUEENING WITHOUT DEQUEENING

BY J. B. MERWIN

That Mr. J. E. Hand, p. 292, April 15, may not be misled in regard to my article on requeening without dequeening, p. 851, Dec. 1, I should like to try to make it a little plainer in some points. We do not try to introduce *virgin* queens by this method, and I have yet to learn of the old queen and the virgin queen fighting when reared by natural supersedure.

There is a similarity in nearly all things; and for example I will take a choice shade-tree in the latter part of summer when it is covered with a dense foliage. Nature has sent forth countless numbers of leaves; but wait until after the first frost, and they will begin falling—only a few at first each day, gradually increasing more and more until the tree is completely devoid of all its foli-



age, and, from all outward signs, appears dead. The next spring, should this same tree happen to be a little backward in sending out its buds we take it for granted something is wrong, and so with the point of our knife we raise a chip off the bark to see if it's not dead. If we are close observers we find a similar case of observations with our bees and their queens.

We will now take a strong colony of bees with a good prolific queen—one that has kept the hive well filled with brood throughout the summer, and at the end of the honey-flow we find the hive filled with brood and eggs. At this time the queen may be laying three or four thousand eggs per day; but now as the honey-flow draws to a close, and the bees bring in less honey each day, so the queen will begin to fall off in her egg-laying, and in a few days' time from her laying three or four thousand each day she will be laying perhaps two thousand and then one thousand, and only a few hundred eggs. Now, the bees observe this apparent failing of the queen, and about this time we happen along in our requeening manipulations and cage the queen for three days. What happens in that hive is now a guess. The egg production has been falling off each day more and more until now it has stopped abruptly, and those little workers come to the conclusion that there is something wrong, and start in to rear another queen. In my mind the age of the queen will have nothing to do in regard to their supersEDURE; and if friend Hand will try this out he will find it the rule and not an exception.

Prattsville, N. Y.

TWO FENCES ON EACH SIDE OF THE SUPER

BY CLARK W. WILSON

Two years ago I bought over 200 N section-frames for 1½-inch sections, and last season I used them. In a ten-frame super seven 1½-inch frames separated by fences is full capacity; and, in order to fill sufficiently the space, two extra fences have to be used—that is, two fences on each side between the outside wall and section-frame, making ten fences to a super. I find this arrangement produces a remarkable effect on the actions of the bees in finishing comb honey. In every super of clover honey the outside frames of sections are completely finished before the center combs are capped. The reason is easily seen on examination of the super so occupied, for the extra fence on each side makes more room for a double thick wall of clustering bees, and they get

in their work before the normal-spaced cluster. The finished sections average 14 ounces up to a full pound.

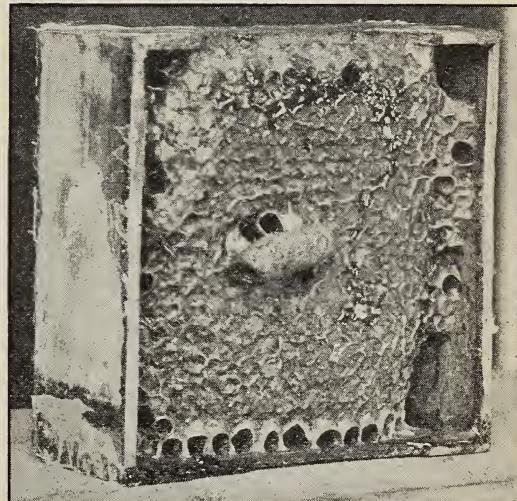
These sections and frames are unmistakably the best invention in this line on the market. The top-bar serves several good purposes. A most important one is that the sections are kept clean on all four sides, excepting, of course, the edges; second, the sections can be forced in together, and they stay "put" before and after the full sheets of foundation are fastened in by the wax-tube. The continuous use of a dozen blocks for three frames allows fast work with the tube; third, the frames can easily be used for chunk-honey production, which cannot be said of Danzenbaker section-frames.

Canastota, N. Y.

WASPS IN A COMB-HONEY SUPER

BY S. H. BURTON

I am sending you a peculiar-looking section of honey which you might photograph for GLEANINGS. If the cells are queen-cells, then the bees must have adopted a new material for queen-cell building, as the cells look more like the work of wasps. But I



Work of mud-wasp. This was the only section in the super that showed any such trouble.

hardly think the bees would allow such things in the super long enough to construct these cells. This was taken from a hive that yielded a crate of fall honey, and nothing peculiar was noticed with the rest of the sections.

Washington, Ind., Nov. 22.

[It is probable that the cell shown was built by a species of wasp which gets into the super during a time when the bees are not occupying it.—ED.]

Heads of Grain from Different Fields



THE BACK-LOT BUZZER

There's one good thing about this system of government going on in any colony; th' police force is never just around the corner takin' a nap. When a great big good-natured bumblebee blunders into a hive, believe me, he comes out a changed bee.

Alfalfa in Kansas

When Mr. Root was in Kansas and saw alfalfa growing only on the bottoms, I am inclined to believe that he did not stop in the best part of Kansas. If he had come to the northeast and central part he would have seen alfalfa on the uplands, and almost none at all on the bottoms. The bottoms are given to corn here almost entirely, and the alfalfa grows and does finely on the highest lands. There are no streams larger than a spring branch nearer to me than 14 miles, and there are more than 100 acres of alfalfa within reach of my bees; but the trouble is, bees work on it but seldom. Many times I have seen fields purple with bloom, with hardly a bee to be seen. Occasionally I have seen a few bees working on it.

CATCHING STRAY SWARMS.

I should like to add a little to what I have read in GLEANINGS about catching bees. Last spring I set in the timber 20 old hives from which I had transferred bees. I had put in two full sheets of foundation with the rest of the frames fitted with inch starters. I put them in little patches of timber, and some in orchards where I had permission. I just put them on the ground or a rock or stump, with a good

big stone on them. I put them out late in April and early in May, and by July I had 15 colonies.

I have a Ford car that I have had remodeled, taking off the back seat, and have a temporary rack behind so I can carry six or seven hives. I expect to catch more bees next summer, and have a whole lot of fun. I also got seven supers of honey from the 15 colonies caught.

Sabetha, Kan.

FRANK HILL.

An Easy Way to Catch the Queen

As my system of swarm prevention calls for finding the queen at a time when bees are somewhat numerous, we must have a quick and certain method for doing it if many colonies per day are to be treated. The queen at this time is restricted to the lowest brood-body, above which is a queen-excluder that will stay her majesty when we smoke in at the entrance and tap the back with a hive-tool. In about a minute remove supers and cloth *en masse* on to an empty super directly in the rear. This is practical for us by June 20 to 26, as supers are not as yet very heavy. The bees will continue to pour above the queen-excluder, and settle thereon; and while they are so doing, raise up the brood-body and place an extra excluder between it and the bottom-board. Now quickly take off the top excluder and examine the under side for the queen. We find half of them here. If she is not there, place an excluder before the entrance to hinder the flight of bees coming in. Then examine the combs, which will be nearly clear of bees; and we can count for certain that we shall see her on the lower excluder, especially if metal only, as bees will slip through to the under side. It can be done quicker than said.

Cayuga, Ont.

M. A. LISHMAN.

Ventilation in the Bottom-board

I should like to say a word about the ventilation of hives. I have come to believe that this is a very important matter, and one that has a great deal to do with the vigor and health of a colony. The entrance ought to be quite open, with wire cloth tacked along to make a small passage for the bees. Besides this a ventilating-hole in the bottom-board is a distinct advantage. It should be about three inches square, cut well toward the back, with wire cloth tacked over, and a wooden shutter made underneath.

The opening, which gives splendid ventilation, ought to remain open for seven or eight months of the year; and, furthermore, it helps the bees to keep the hive-bottom clean, for they drag the rubbish to the hole and push it through the wire cloth. One beekeeper, in 1912, told me that the only hives that kept free from foul brood in his apiary were those with extra-wide entrances and bottom ventilators, and he thinks this one of the chief factors in preventing swarms when running for comb honey.

Cheltenham, England.

A. H. BOWMAN.

Horizontal Queen-cell Production

I read with considerable interest Mr. Isaac Hopkins' contribution on p. 697, Nov. 1, 1912, on the subject of horizontal queen-cell production. I did not like the original method as described in the Aug. 1st issue of the same year, as it seemed to me too wasteful. I select a three-story hive, leave the queen and four or five frames of brood in the bottom (the hive having ten frames of brood), and put the rest of the brood in the second story over an excluder. In seven days I move the bottom box to a new stand; drop the second box with the brood on to a bottom-board, and put the comb on that in its rim, and put

the top story on that again. I do not cover any paper nor any thing else over the brood on the top side of the comb, which is standing on its tail, as I consider this one of the wasteful phases which I wish to avoid. Perhaps I am wrong in this. Like Dr. C. C. Miller, "I don't know."

Mr. Hopkins' previous article advised the use of a new comb. I tried this; but it sagged so badly that I lost a lot of the cells. Since then I have used a fairly old brown comb, and have also stayed it by wrapping wire around it.

I tried the system of scraping the intermediate rows out; but it took a lot of time, and I tried putting the comb on just as it was.

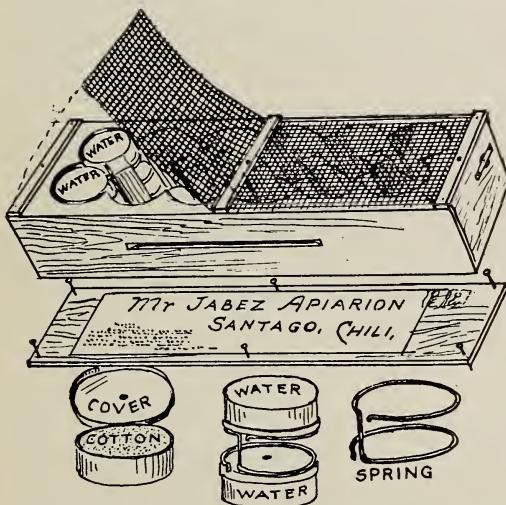
Perhaps this is not right, and perhaps I shall go back to the old system; but I have got from 25 to 30 cells on each comb, and I think that is satisfactory.

MAJOR SHALLARD.

South Woodburn, N. S. Wales, Australia.

A New Can for Holding Water in the Mailing-cage

We are sending under separate cover a sample of our long-distance cage with water-cans. We have had no trouble in keeping the cans sealed water-tight if a small amount of tallow is used with the wax. We have tried the tin tubes in the cages, but found on some of them it did not work unless the tube was made in separate sections so that in case the cage was standing on end while being sent through the mail the air would get in the other end, and the



water would all run out in a short time; so we went back to the little cans; for, no matter in what position the cage may be, the water will not run out; and, in fact, when it is filled it takes a hard smash to throw even a drop out.

We are all looking for the best plan to send water with our bees; and the only way I see is for every one to give his best ideas on the subject, as the best will surely have to use it.

San Jose, Cal., Mar. 11. W. A. BARSTOW.

[The use of the little tin cans as here shown will be all right providing you can make them water-tight. We tried these to our satisfaction, using paraffine and beeswax to make a tight seal. But the trouble is, the bottles will do for a few trips; but when queens are sent out in quantities it will be found that they will leak. The only thing that we ever found effective is the tin tubes with corks fitting tightly. Just above the cork, which should be at the bottom, is a small perforation. Through this is a small string that acts as a wick. To overcome the objection of the bottle being wrong side up, we put in two bottles, one on each side of the cage, so that, no matter which way the cage stands, either side-

wise, endwise, or flatwise, there will be one perforation at the bottom, or where the bees can get at the water. So far this arrangement works the best of any thing we have tried. Small homeopathic bottles, with a slot in the cork, and a string in the slot, may be used. But there must be two bottles to the cage, and the ends reversed so that all the bees can get water at the slot in one of the bottles. Care must be taken not to make the slots in the corks too large. They should be no larger than will admit a common string without pinching it. Unless a string is used the water will leak out too fast.—ED.]

What is to Blame for the Great Mortality of Queens Mailed in New Zealand?

I notice that you have gone back to the water-bottle for mailing queens. Since I started beekeeping some years ago I have spent money on imported queens, all of which have arrived dead. The last I got were posted to a ship's purser at San Francisco, and he kept them in his cabin and posted them on to me at Auckland. He wrote and said they ceased to show signs of life after they left Papeete, where they had a few days of hot weather. Years ago beekeepers could depend on getting over 50 per cent of queens alive; but I think they had water in those days.

Mr. Isaac Hopkins, late Government Apiarist, is always putting the present-day mortality down to the fact that the larvae are transferred. I am tired now of sending money for dead queens. For the New Zealand post, to save delay, they should be marked "queen bee, not dutiable."

Dewauchelle, N. Z., Feb. 12. W. B. BRAY.

[The loss in sending queens to New Zealand, we do not think, is any greater to-day than it was twenty years ago. Only a small percentage of the queens ever went through alive, and that percentage was and is so small as to be discouraging. We are in hopes, however, that the new water-bottle scheme as explained in the preceding footnote will solve the problem to a great extent. We hope to conduct some exhaustive experiments with water-bottles this summer, trying out some cheap queens or merely bees. But experience has proved that the candy must be soft, and that the water-bottles must be so constructed that they will not leak *en route*.—ED.]

How and When I Make Use of Smoke

When I have to examine a hive thoroughly by taking out all the frames or to shake off the bees from combs, or to unite bees of two or more colonies early in the spring or late in the fall, I find it necessary to administer a few puffs of smoke from the top of the frames only. Using smoke from the entrance being unnecessarily distressing to the bees, I never do it.

During the honey season I do not make use of smoke, and often go without a veil. In midsummer, from July to September inclusive, when the temperature is high, say from 80 to 90 F., which differs little from that of the hive, the propolis turns soft, and the bees do not mind the exposure, and do not get irritated except when they are very roughly handled (manipulated), or under inconvenient circumstances such as robbing, etc.

Nicosia, Cyprus, Sept. 5. M. S. DERVISHIAN.

[Ordinarily it is not necessary to use smoke at the entrance. A little puff over the tops of the frames during the middle hours of the day will be quite sufficient. If there is any occasion for opening hives on a chilly day in early morning or late in the evening, or at night, smoke should be used at the entrance, and a liberal amount over the tops of the frames. In fact, when one has to work with bees when it is a little dark he will find it necessary to use considerable smoke. Little and often is better than to use a large amount and then stop.—ED.]

Swarming Bees that were Cross

About the last of August I had two very large swarms come off, and I never saw bees so cross. I used water to make them settle low, and they literally covered me while they were in the air, stinging with all their might. I had a very hard time to get them hived. I had to go into the woodshed three or four times to clean the bees off my body. I was stung about 20 times, as they crawled in every crevice in my clothing. What caused them to be so cross? They are Italians, and were working on buckwheat at the time.

Ossineke, Mich.

F. G. PENNELL.

[It is not common to find bees cross when swarming, for they are usually pretty well filled with honey so that they are not likely to be irritable. Occasionally, however, something happens to infuriate them, and then they will sting. At such times it is pretty hard to point to a definite cause.

Possibly the bees of the parent colony from which the swarm issued were more irritable than others which you have. Several have reported, moreover, that bees are often pretty cross while working on buckwheat. Why they should be crosser than at other times we do not know. If any robbing had been going on, or if the honey-flow had suddenly let up, the explanation would be simple.—ED.]

Foul Brood in Kentucky

The losses resulting from carelessness of indifferent beekeepers are the only ones of any consequence. Very heavy losses have occurred among those who had foul brood, and did not shake. This old-fogey idea that foul brood will not cause a great per cent of loss is absolutely absurd. Kentucky is badly in need of a law that will compel every man who has disease to get rid of it. Just so long as one man is permitted to have foul brood, every one near by will be more or less bothered by this deadly disease. Let us as beemen, in the absence of such a law, resolve to do all we can to eliminate this malady.

Brooksville, Ky., April 7.

L. F. RICE.

Sliding the Super Forward to Let the Bees Escape

On p. 309, April 15, Mr. Ewen wants his escape in the center of the board. I used an escape-board when the first dovetailed hives came out—just a plain board on top of the new super (or extracting-frames if extracting), then the honey-board, then the full super, then the cover. The bees escaped through an opening made by shoving the full super over the front end of the honey-board $\frac{1}{4}$ inch, or just enough room to let the bees pass out and down to the entrance of the hive. We put the boards on in the late afternoon or evening, and the next morning the full supers were clear of bees.

An opening through the front strip of the escape-board is all that is necessary. This method will not work if the bees can not all get inside. After escaping, if crowded for room, they will cluster on the front end of the hive, and keep possession of the full super.

Portland, Oregon.

CHARLES RUSK.

[During a honey-flow this plan will work, but robbers would take possession during a dearth.—ED.]

Bees that are Habitual Robbers are the Ones that Spread Foul Brood

I was interested in Mr. Doolittle's article, page 710, Oct. 15, 1913, as to desirable bee traits or natural characteristic qualities of different colonies; but he did not touch upon one vital point—robbing—which to me meant very much when it comes to handling American foul brood. Referring to the question of immunity from foul brood, it is the colonies that get right out in the fields that are immune, not the ones that are for ever pilfering and prying around at all the hive entrances. They are the ones

that continually keep spreading diseases. I would suggest that one or two decoy hives be set out with a few old combs in them, and bee-escapes turned in, so that in the evening the bees thus caught robbing can be sprinkled with flour to enable the beekeeper to tell what hive they came from. He should then mark such to have a "smoked-in queen" (by the way, that trick is worth dollars).

The black bees are natural robbers, and that is the reason why they are so hard to handle when foul brood gets a start. Some individual colonies of any races are natural robbers, just as in the human family. Breed from the hives that get right out into the fields, and show results in the hive, and add all the other good traits Mr. Doolittle speaks of.

Colo, Iowa, Jan. 1.

D. E. LHOMMEDIUE.

Brood-comb Clogged with Honey Before the Main Honey-flow

Complying with Dr. Miller's wish, p. 244, April 1, I will say that supers were on. Some of them had a few bait sections; some two, some four, etc. These bait sections were filled in the strong colonies the same as were the frames in the brood-chamber. In the weaker colonies they were untouched.

Our location provides a long period of warm weather from Feb. 15 to June 15, during which time there are intermittent sources of nectar, beginning with willow, then fruit-bloom, followed by some varieties of sage. The altitude is high (4800 ft.) and dry, with an almost cloudless sky. This dryness shortens the time that the sage bloom is in its prime or nectar-producing stage, and, moreover, the flow is not continuous enough for comb-building in sections, but increases as the season advances, so that the brood-chamber becomes clogged. Some of these frames are fully capped 15 days before alfalfa.

This year the brood-rearing started two weeks earlier. There will be very little if any old honey left in any of the brood-chambers, and all colonies are strong in young bees.

Were it not for the abundant stores from last fall, we would have had to feed at this time. I have planned to have new combs drawn from full sheets during the time the clogging takes place this year by inserting foundation between brood.

Bishop, Cal.

GEO. M. HUNTINGTON.

Queen Goes to Another Hive

I once introduced a breeding queen to a small colony. She did finely for about four weeks, when she suddenly disappeared and the colony refused to build cells, even to rear themselves a queen. In about three weeks I saw the same kind of bees flying from another hive two hives from there, and on examining it I found that breeding queen doing good work. Has any one else ever had such an experience?

Clarkston, Mich.

W. L. LOVEJOY.

Honey 40 Cents per Gallon in Jamaica

It is to be regretted that honey has fallen so low in price this season; 40 cents per gallon for white and 30 cents for amber is the best price offered. Many beekeepers just let the honey remain in the hives for the bees to consume. Up to last year honey was eagerly bought up at from 70 to 75 cents per gallon.

F. A. HOOPER.

Four Paths, Clarendon, Jamaica, April 20.

Death of Josiah Eastburn

I am sorry to inform you of the death of Mr. Josiah Eastburn, proprietor of the Locust Grove Apiary, Fallsington, Pa. Mr. Eastburn was the leading authority on apiculture in Bucks County, where he was engaged in apiculture for about 30 years. He was a man of upright character. His widow survives him.

Elizabeth, N. J., June 3.

E. E. GUY.

A. I. Root

OUR HOMES

Editor

Honor thy father and mother; which is the first commandment with promise; that it may be well with thee, and that thou mayest live long on the earth.—*EPH. 6:2, 3.*

I hold in my hand a book of 480 pages. The title is, "Old Age Deferred," by Arnold Lorand, Physician to the Baths, Carlsbad, Austria. The book is published by the F. A. Davis Co., Philadelphia. The price is \$2.50 net. Dr. Lorand is evidently in close touch with the most prominent physicians and scientists of the present day. The book contains much that is very good; and I am glad to see that it is very closely in line with Terry, Fletcher, and others who have been teaching us forcibly the advantage of less eating and of a thorough chewing of all we do eat. I cannot take the time just now in this Home paper to make a résumé of the book. On almost every page, the author speaks of the harmfulness of alcohol, tobacco, tea, and coffee (the book is just out, the date being 1914); but notwithstanding all this, the author closes up his chapter headed "Deleterious Action of Alcohol," as follows:

But we again repeat that there is not sufficient strictly scientific evidence as yet, to prove that small quantities of alcohol (especially beer or wine, and possibly whisky) are deleterious to the majority of adults; those who cannot stand even small quantities will be best without any; but we fail to see why a working man, when he comes from his daily labor, should be forbidden to take his glass of beer.

Then, again, in the chapter on tea, coffee, and tobacco, he closes up by saying:

We do not think that two or three light cigars a day, but never before meals, can do any harm, save in exceptional cases.

To my mind it is not only lamentable but astonishing that a man of his experience and broad education in regard to almost every disease known should be so stupid (begging pardon) as to forget or ignore the fact that *moderate* users of both liquor and tobacco almost invariably become *inveterate* users before they die. Why, the great distilling companies—at least two of them—recognize this so fully that they propose to sell a list of the names of their patrons to a Keeley-cure institute with the remark that, sooner or later, their customers (moderate users, of course) will become patients at the Keeley institute.

The author of this book admits in his writings that he is not a married man. I may be a little peculiar; but to my notion, no doctor is fully qualified to advise and treat husbands and wives until he is a married man himself. Perhaps I had better modify it by saying that any doctor 25 years old should be a married man; and, God

permitting, he should have some children—say four or five, or, better still, half a dozen; then he will know how, *by personal experience*, to take charge of both husbands and wives. I would suggest, also, that his wife study medicine, and go with him a good deal, especially when he has women patients. He had better have his office so close to his home that the good wife can be called in at almost any minute.* Now, Dr. Lorand tells us he is not married. I wish he might be equally frank with his readers and tell them whether he uses tobacco, and, say, a glass of beer occasionally that he recommends to the "workingman." I suppose he would class me among the "faddists," especially when I say the family physician should use neither alcoholic drinks nor tobacco. Most surely the doctor who sees the evils of tobacco and drink, as this man does, and talks about its effects, not only on the present generation but on the generation to come—*surely* such a man should be able to come before his patrons and say, "I practice what I preach," or, in other words, "I, your family physician, take my own medicine, or the medicine that I daily use."

This good doctor is frank enough to declare that the man who asks a woman to take him for better or for worse should be able to show her a certificate from a good physician in regard to his habits, and freedom from disease. Just recently I heard the agent of an insurance company say that every young man when he asks a woman to have him should be able to show the good lady an insurance policy on his life. This would be valuable for her for two reasons: First, because he is wise enough to have something laid up for a rainy day; and, secondly, that the insurance doctor or physician employed by the insurance company has made a thorough examination, and guarantees that there is no disease about him that might pollute her own pure self. Now, do not call it another of my cranky ideas if I suggest that this good man shall also be able to tell her he is a member in good standing in some church. So much for a preface to what I have been moved to say to old people like Mrs. Root and myself.

So far, may God be praised, Mrs. Root and I have been able to take care of ourselves, and occasionally, too (thank God), to help a little in the care of the children

* By the way, in my opinion every minister of the gospel, as soon as he is of proper age, should also have a wife, and, a kind Providence permitting, children also. If he is to tackle the sins and crimes that afflict humanity, he should be a parent in order that he may speak from the father's standpoint.

and grandchildren. But the question is coming and creeping upon us day by day, "What shall we do should the great Father permit us to remain here long enough till somebody has to care for us?" While this matter is in my mind I keep thinking of Jesus' words to Peter. Let me quote:

When thou wast young, thou girdedst thyself, and walkedst whither thou wouldest; but when thou shalt be old, thou shalt stretch forth thy hands, and another shall gird thee, and carry thee whither thou wouldest not.

When we get so old as to be in some respects a burden to our good and devoted children (two boys and three girls) are we going to be a *trouble* and a *worry* to them? Shall we become cross and cranky because we cannot have every thing just *exactly* our own way? How many of you whose eyes are resting on this page have thought of that? Look about you and see. Consider the old people whom God has permitted to be perhaps eighty or even ninety years old. Are they usually, all of them, still a blessing to the world? Are they helping along the great wave of progress toward God's kingdom? Old people have notions—queer notions. I feel it coming on me already. They get to be deaf, like myself. It is not only a task to make them hear but to make them understand; and they are forgetful. You have to tell them things over and over. Saddest of all, they sometimes lose their mind, and become idiotic or imbecile. I have talked, perhaps, in a joking way about living to be a hundred years old; but I am hoping and praying and *striving* to avoid any thing that might lead me to be a burden on society or on my friends and relatives.

The question has come up half a dozen times quite recently as to what shall be done with old people as they become helpless and hard to take care of. Shall they be sent to the county infirmary? Years ago we could hire a man or woman at a reasonable price to stay with such old people; but it is a far more difficult matter now. Suppose some old father or mother, or father-in-law or mother-in-law, becomes a burden on some good woman who already has a family. Shall she wear herself out and go down to a premature grave just because the family or the people are too proud to let the old lady or the old man be cared for by the county, or, say, at some "old ladies' home"? I am not going to answer this question. The old ladies' homes have done wonderful things, to my knowledge, in taking good care of old ladies during their declining years.

There is one point I did not touch on as I intended to. Suppose this old mother does not recognize a single one of her children

or grandchildren. Suppose she keeps saying over and over, "I want to go home; I want to go home." Suppose, if she is not watched every minute, she will get away so the whole neighborhood has to turn in and hunt her up. If she does not know any of her friends or relatives at all, would she not be just as happy and contented—perhaps more so—in an old ladies' home where she could have the care of experienced and well-known trained nurses? But, hold on a bit. There is another side to this. The papers tell us of hired help in these asylums for old people who have not only been guilty of abusive language but even of blows and kicks and bruises because these old friends have queer and unreasonable notions.

Our text says: "Honor thy father and thy mother." We have just been talking about living to a good old age; and God's holy book tells us one of the *requirements* for longevity is to honor our father and mother; and I take it that it means other people's fathers and mothers as well as our own. What are we going to do with *all* the fathers and mothers? What *are* we doing with them? What *will* be done with them? I said to myself recently, "A. I. Root, what are *you* going to do when you get to be too old to take care of yourself? What are you going to do when the good wife gets to be too old, or when God has taken her away so that she can no longer spend her life and strength in anticipating your every want?" May God help us, when that time comes, to practice what we preach. I will tell you one thing I think I shall want; and that is, a garden and some chickens, just as long as I am able to work in the garden with a light little hoe. Right near the garden, and adjoining it I want a comfortable place to take my nap. In fact, I have such a garden and such a place to sleep already. When it is too cool I have a little "sun parlor" where I can lie down in the sun.* When it is too warm in the sun parlor I have a cot in a cool basement just back of the sun parlor. So you see when I am chilly I can lie down in the warm room. When the weather is oppressively warm I have a cool retreat. Mrs. Root fixed the cool sleeping-place for me yesterday, June 8, for it was 94 in the shade a good part of the day.

Now, elderly people are apt to get untidy.

* By the way, let me tell you that I never go into that sun parlor or cooler room unless I am tired out from muscular work in the garden, or with letters and correspondence in the office. I make it a point never to think of taking a nap because I have nothing to do or because I feel "lazy." My naps are taken when I am pretty well tired out and *need* rest; and it is certainly a benefit to me to take a little rest before I sit down to dinner. Sometimes when business calls I eat a meal when pretty well tired out, because there is no time for napping; but it does not do me nearly as much good.

Yesterday I happened to meet a man who pretty much all his life had been the pink of neatness. He is now over 80 years old. I was surprised to see some spots on his clothing that I think were made by dropping his food. Then I glanced down at my own vest and pants; and (I am sorry to say it) there were some stains there also. A spotless clean napkin is by my plate at every meal. By the way, perhaps I might confess that one reason why it *is* so "spotlessly clean" is because I do not use it. I am either too busy or else I forget; but I am going to try hard from this day on to use that napkin and keep my clothing clean in other ways, so I shall not worry the good wife. Old men are very apt to become careless. They neglect going to the barber's. Did you ever notice how much neater and brighter some old gentleman looks after an expert barber has fixed him up? Well, I have decided I must go to the barber's oftener. I will try to use that good-sized nice clean napkin, and wash my hands more frequently, and I will spend more time in cleaning my feet after I have been out in the muddy garden. I will use the broom that stands by the doorway of my sun parlor oftener so as to save the dear wife the trouble of following after me. I will try to have my places of work more decent and in order than I have done. If by some blunder or mishap the children or grandchildren make a mess of my work I will try to avoid complaining.

There is a bright sweet "little toddler" who especially likes to share my apples and grapefruit at about five o'clock every afternoon, and lately she is quite fond of being with me out in the garden; but she seems almost sure to put her little chubby foot on a sesame plant or a fall-bearing strawberry that I am trying to nurse back to life. Shall I go and tell "Carrie Belle" that I can not have her little girl blundering around in my garden? God forbid. I will tell you what I am going to try to do. Perhaps I have done it already. I have said out loud, "May the Lord be praised for the brightness that Carrie Belle has already shed over my life since God gave her to us; and may the Lord be praised that this bright little prattler, another edition of Carrie Belle, has learned to love—perhaps just a little—the cranky old grandpa, even if he does scold her sometimes for stepping on his precious plants." Does not that beautiful little text fit in right here—"Ye are of more value than many sparrows"?

Now, dear friends, all of you who think that you are growing old, and perhaps have been afraid you might be a burden sometimes on the younger and busy world, shall

we not, each and all of us, try a little harder to hold fast to the Bible promises? Shall we not try a little harder to be *easy* to get along with—easier to *let go* of old things and to take up with new things? Shall we not be more careful about criticising the younger ones who make so much of baseball games, summer outings, county fairs, Fourth of July, possibly circuses and animal shows—things we no longer care for? Of course, it is not incumbent on us to go to these great gatherings unless we choose; but let us try to learn wisdom from the past.

The book I have spoken about—"Old Age Deferred"—puts strong emphasis on the importance of eating sparingly when you are obliged to give up severe manual labor; and it agrees almost exactly with Terry in saying that old people who have given up heavy bodily labor should eat but little meat or none at all. Dr. Lorand recommends milk very strongly for old people, as it is ready for the stomach and bowels without being obliged to chew it "everlastingly," and I do think many old people would not only live longer but hold their powers much better if they would eat only two hearty meals a day, and, say, apples or some fruit that seems to agree with them for a light supper.

Now, once more, who is there among you who is not only going to strive for a good old age, if God so wills it, and at the same time hold our reasoning powers, and, above all, *our religion*, so that we may be of *some use* to the world instead of a hindrance, up to the last?

Just recently I spoke of the boy who came so near drowning, and said that, if he grew up to be a cigarette fiend or a victim of intemperance, saving him from drowning would amount to but little or nothing. In fact, he had better have died an honest and innocent boy rather than to have become a criminal. Let us now apply this same reasoning to old age. We are talking about living to be a hundred years old; but, seriously, what is the use or what does it amount to if we keep on living a life of uselessness or imbecility—a burden to our relatives and to the public? God forbid that I should teach or insist on any thing of the kind. We had better be dead and out of the way than to live a life of useless self-indulgence. But, may God be praised that we have quite a number of examples of old men and women who have been a blessing to the world, even to the last moment of a good ripe old age. I would suggest Benjamin Franklin, 84; W. E. Gladstone, 89; Cornaro, who wrote a valuable book when he was ninety years old. Terry has been particularly strong in

this matter. In fact, the title of his book is, "How to Keep Well and Live Long." If we keep well as long as we do live, we shall certainly be of some use to the younger generation. How often have I seen an old grandmother who interested the children and looked after them in such a way that, when God took her, she was missed most keenly by every member of the household, even though she may have passed her fourscore!

After the above was put in type I sent a proof to my friend T. B. Terry, and offered to send him the book if he had not already seen it. Below is his reply:

Dear Mr. Root:—I haven't seen the book you refer to, "Old Age Deferred." When you are through with your copy I certainly shall be glad to get it. But, as I understand from your article, Dr. Lorand allows a moderate use of liquor and tobacco; and I have very little confidence in any man's teachings who takes such a stand. With such, to be popular is more than to be strictly truthful and helpful to humanity. Of course, one can get some good thoughts from such writers; but, you see, one does not dare accept any thing they say as true which he does not know himself is so.

Friend Root, I do not believe for an instant that God intended we should be helpless or lose any of our faculties in our old age. I do believe that we bring all such so-called old-age infirmities on ourselves by wrong habits of life. They are punishments for natural laws violated. The older I get, the more I study and experiment, the more certain I am of being right. Ten years ago it would hardly have done to say this. But the world is waking up to the truth at last.

Mr. Root, I do not believe you half realize how much good your articles are doing. I always like to get the views of an outside friend. So let me give you mine by saying you are doing better work than you could 20 years ago. And why not? You have had more experience, your business cares are less, and your head is as clear, thanks to right living. Ten years from now your writings will be worth more to humanity than they are now.

I have now had a four-weeks' vacation and "let-up," and outdoor work, for the first time in 25 years. Really it does seem as though I felt better now than when I was 40. I hope you and your good wife are feeling as young and vigorous as I do—yes, more so.

Hudson, O., June 17.

T. B. TERRY.

Dear friends, I have received many kind words—in fact, many kind and encouraging words are coming every day; and I frequently say to Mrs. Root, "Sue, I have had a letter to-day more encouraging than any heretofore;" and I think I can say the same in regard to the closing sentence to friend Terry's letter. May God give me grace and physical strength and inspiration to continue finding something helpful to all our readers, young and old, for ten years to come.

ville, Ohio, during his temperance talks, read us a "love-letter" from one who had been formerly a saloon-keeper; but after his conversion to the Lord Jesus Christ he turned and wrote a *love-letter* to the man whom he used to fight. Well, I have received a love-letter too; but it comes from a friend, and one who has always been my friend, so far as I know. Here it is:

Dear Mr. Root:—

"I lang hae thought, my youthfu' friend,
A something to have sent you,
Tho' it should serve nae ither end
Than just a kind memento;
But how the subject theme may gang,
Let time and chance determine;
Perhaps it may turn out a sang,
Perhaps turn out a sermon."

I love you, Mr. Root. I have been acquainted with you for only about five years; but from the first number of *GLEANINGS* that I received, began an affection that has increased with the years, and bids fair to last until you reach that hundred-year mark that you have set for yourself. The beautiful simplicity of your life appeals to me, and shows that you give the Lord not only lip service but also heart service.

For eight years I was a salesman for a wholesale grocery house in Atlanta, and left them only last January to go into the grocery business for myself. Kirkwood is a suburb of Atlanta, being only four miles from the city.

For the past five or six years I have been interested in bees, and have studied them pretty thoroughly. They are intensely interesting to me; but since I am now in business for myself, and am closely confined, I have not the time to give them. From reading Mr. Frank Benton's writings, I became interested in the Carniolans, and have kept them and their crosses with Italians. I much prefer the Carniolans, as they are gentler, have a large force of bees early in the spring, and don't stick up the hives as the Italians do. They do not swarm any worse for me either, in spite of their reputation to the contrary.

I run for extracted honey. I have only seven hives, and not the time now to give even that number the proper attention, and I have had only two swarms this year. I hived both right back in the old stand after raising the brood-chamber over the second story, and putting an extra set of combs in its place. Of course, I cut out the cells, and they went to work with a vim.

There was a plot of red clover about fifty feet square near my home, and I was surprised to see my bees hard at work on the blossoms. I thought that it is very unusual for bees to work on red clover.

I have a Novice extractor, but I have never learned to use it without breaking the combs. I use wired foundation; but even combs three or four years old break in the extractor. I am now selling the honey in my store at 17½ cts. per pound for bulk comb, and I get 25 cents for a pint jar of extracted. The firm for which I sold groceries for eight years handle Wilder's honey in the pint jars, and I had lots of experience with it. Privately, in spite of his plan of exposure to the sunlight, it granulates badly, and I have bought many a case of 12-pint jars from retail grocers for \$1.50 after they had paid \$2.60 per case for it.

I carried five colonies and two three-frame nuclei through the past winter. The five were chock full of goldenrod honey, and had a big force of bees all ready to go to work in the spring. I have taken about 150 pounds of bulk comb and extracted already, and have not touched several of the supers. The honey is from poplar, locust, blackberry, daisy, and fruit. It is dark, but it is very finely flavored,

A LOVE-LETTER FROM ONE OF OUR SUBSCRIBERS

Some time ago (p. 473, July 1, 1913) I mentioned that one of our Anti-saloon League workers, Mayor White, of Barnes-

and all say it tastes like the "honey father used to make." The past two years are the only years that have given me any surplus; but I think that I, like most beginners, monkeyed with the bees too much, and did not give them any time to make honey. I find that the more I leave them alone, within certain limits, of course, the better they do.

Last month I set some perfectly fresh Indian Runner duck eggs under a hen. In three weeks one little duckling hatched, and one week later the other eggs hatched. How would you account for that one? It is a freak of nature. The little fellow seemed perfect; but as I had no way to keep just one, I gave him to a boy.

Like you, Mr. Root, I believe in simplicity of diet. Honey is the only sweet I eat, and I eat very little of that. Two meals a day are enough for me, and there are very few things in my store that I eat myself. A little fruit and vegetables are enough for me with graham bread and corn muffins. Unlike Terry, I find vegetables are better for me than fruit. Acid fruits are not at all good for me.

When I was 25 years old I was superintendent of a cotton-mill, and a fit candidate for a consumptive's grave. In fact, I had to give up my work and live in the open air. I began to study the question of diet and proper living generally, and now at the age of 33 I am strong and ruddy, and have not taken a dose of medicine in years. Light eating, freedom from constipation, and fresh air, have done the work. I sleep out of doors every night in the year. I believe that diet is the most important question before the people to-day. Diet has a great influence on the morals and also on the religion of the people as well as on their bodies. I believe that it is possible to live so that there will be no sickness or bad feelings. But if sickness begins to come on, a full enema once a day for several days, and about a two or three days' diet, with lots of pure water, will generally forestall the doctor.

As I said before, Mr. Root, I love you. I love the work you are doing. I am with you in spirit in all you do for the betterment of the people. I am "agin'" the liquor interests and the patent medicines and the quacks and the nostrums. I am with you in your efforts to let the light shine in the midst of the darkness in which such a large part of us live. I pray that you may live long, and that you may continue to "turn on the light." It would be a great pleasure to me to know you personally.

Kirkwood, Ga., June 3. HAL RIVIERE.

In regard to honey in pint jars containing a piece of comb honey, our people have given up putting comb honey into jars or tumblers. I rather protested; but our "honey-man," Mr. L. W. Boyden, declared that after the honey candied nobody would buy it, and there is no way of restoring it to its original shape. I know friend Wilder has been putting up and selling not only tons but carloads of honey in this shape. I talked with him about it not long ago; but he said that in the Southern States, where there is seldom or never any freezing weather, there is but very little trouble. I am surprised to learn that your extractor breaks the combs when they are properly wired. If they are filled very heavy with thick honey I would throw out a part of the honey and then reverse and take the other side. This, of course, takes some time, but it usually prevents injury to the combs.

In regard to the one duck hatching in three weeks, that one egg must have been sat on by some accident, or exposed to heat enough for about a week to cause the germ to start. During the past winter I gave a Leghorn hen 15 eggs. Not an egg had hatched at the end of 21 days; but as the egg-tester showed live chicks I let her keep on. She hatched six chickens in just about 26 days, and might have hatched more if I had not got tired of waiting, and "broke her up." I have never been able to account for this.

My good friend, some of our readers will smile when you tell us you eat very little of the things *you have for sale*. It reminds us of the doctor who would not take his own medicine when he got sick. I rejoice to know that you are getting your health without doctors or drugs, and extend my sincere thanks for your very kind words; but I wish to add, my dear brother, that I hope it is the Christlike spirit I have faintly shown that you "love," rather than my poor self; and may God help us all to show forth at all times that spirit of peace and good will that ought to "shine forth" from the face of each one of us.

OUT OF HEATHEN DARKNESS AND INTO THE LIGHT OF THE GOSPEL.

The following should be read because it comes from a son of the late D. L. Moody.

Dear Mr. Root:—As you have given to the Northfield Schools during the past season, I am taking the liberty of writing to report upon the work of the current year, and trust that you will not view this as in any sense an appeal.

In September the Northfield Schools opened with the largest attendance in their history, aggregating 1250. About 200 were new students, and those had been selected from nearly a thousand applicants, the choice being based upon need and merit. The result has been an exceptionally earnest, purposeful class of young people, and I have never before realized so much as during the recent months the privilege which is given to us here in ministering to young men and young women of this class.

It would be a great joy to us to be able to share with our friends who are making Northfield possible many of the individual experiences which we have with our students. To know of the struggles and privations which some of our young people have experienced to come to Northfield; to watch with interest the development into efficient and promising students of those who have had few opportunities; and then to know of their going into the world imbued with high ideals and carrying the traditions of Northfield with them, is a pleasure which we should be glad to share with our many friends.

Of our graduates at Mount Hermon last spring one is a man who gives promise of a great career among his people. He is a Liberian, having received his early education in the Methodist Mission in Monrovia, where his gifts were recognized. Later he came to Mount Hermon, where he won a high standing for scholarship. One of his teachers assured me that he had the best mind of any student that he had

ever taught. This testimony was of greater value as it came from one who has been teaching for many years. The student took prizes in chemistry and physics, and gave his commencement address in Latin. He is now a freshman in Harvard University. His career is the more remarkable in view of the fact that, twelve years ago, he was uncivilized in the jungles of Africa, and in this short time has accomplished so much. His earnest purpose is to return to

his own people, and during holidays he has been working upon his native lingo, reducing it to written form, and, with the assistance of a teacher, translating from the Greek Testament into this language all of the parables of our Lord, and the first few chapters of the gospel of St. John. This is one of many cases for which it is our privilege to work at Northfield.

Sincerely yours,
East Northfield, Mass., Dec. 25. W. R. MOODY.

HIGH-PRESSURE GARDENING

NEW POTATOES AT 60 CENTS A PECK.

The above is the price we pay at our grocery here in Medina for new Red Triumphs—the same kind that I grew down in Florida, and these were *probably* shipped in from Florida or some of the Southern States. But even at 60 cents a peck they were not first-class. They were all rather small, and some of them quite small, and quite a few of them were imperfect. A year ago I talked to you about growing a few potatoes in your back yard so as to avoid being obliged to pay the extravagant prices that generally rule in June. When I got back from Florida the first thing I did was to plant some potatoes; but just as it has often happened before, I could not get seed of the Red Triumph. In fact, I could not get any seed of early potatoes of any sort, with the exception of one seedsman in our town who had a few potatoes that were brought in by some countryman who called them Early Ohio; but the seedsman was frank enough to say he did not believe they were true to name. I planted some of these at once; but as my ground was not in proper condition they are now, June 13, only just showing blossom-buds. Some of you may say that if we try to grow a few extra-early potatoes in the back yard it may *cost* us 60 cents a peck; but I am sure it need not. As a proof, a good neighbor of mine, Mr. M. D. Kimmell, just a few minutes ago said if I would go down and take a look at his garden he would give me a nice mess of new potatoes. He said they were Burpee's Extra Early.

Now wake up, friends, you who love to make garden, especially quite early in the spring, and who also love short cuts between producer and consumer; turn in and help *me* practice what I preach. Terry has finally decided potatoes to be the most wholesome vegetable; in fact, it comes next to home-ground wheat. I think potatoes and wheat of our own growing, and home *grinding* of the wheat, may be a large factor in attaining an age of a hundred years, and a fair use of all our faculties.

Later.—After the above was put in type

I came across the following in the Jacksonville *Times-Union*:

Within a period of ten days St. John's County shipped 1200 cars of Irish potatoes, and then some people wonder if there is any thing in farming in Florida.

Sure enough! The above comes in nicely with people who are inclined to run down Florida. Just think of it! 1200 carloads shipped from one single county, and that in a period of only ten days! Good for Florida!

BUGS ON SQUASHES, ETC.

On Sunday morning, June 7, although I was out just about sunrise, I found a swarm of little striped squash-bugs had pretty nearly riddled my thrifty Hubbard squashes that I started in the hot-bed. They were just swarming over the dozen hills. I did not look around for any covering or screen, but caught the bugs, as far as I could, before they flew away, and mashed them between my thumb and fingers, letting them drop all around the ground. Then I went to the next hill and did the same thing. By the time I reached the last of the dozen hills there were more on the first hill, and I kept on until Mrs. Root called me to breakfast. Now, even though it was Sunday, I decided I could not have my squashes all ruined that way; and I spent quite a little time in getting some boxes to put around each hill. I did not have boxes enough, so there were several hills uncovered. My conscience troubled me a little, I admit, because of what looked so much like work on Sunday; but I thought the circumstances demanded it. Now for the outcome. The squashes I did not cover were not troubled worth mentioning, after which I concluded to mash the bugs and drop them around on the ground. In fact, these hills did rather better than the covered ones, because the box cut off the light. At the present writing, June 13, I have not been able to find a bug since that Sunday morning; and my impression is that the sight of their mashed and wounded companions scared them so that they all flew away to "healthier" hunting-grounds; and this only emphasizes the conclusion I

have been coming to for some time; and it will apply to rats and mice, potato-bugs, squash-bugs, flies, mosquitoes, ants, etc. Get right after them; mash them right and left whenever an opportunity offers, and all these pests will sooner or later give your locality a wide berth.

I have not yet used any poison on my potato-bugs this year at all; but, of course, I have not a very large patch of potatoes. It is mostly the one row of Early Ohio I have mentioned. I go along this row every morning, noon, and night, and sometimes oftener, picking off every mature bug I can find, dropping them on the ground, and crushing them with a twisting motion of my foot. I think the smell of the crushed bugs has much to do with their keeping away new comers. You may recall that Terry thinks it is cheaper to hand-pick the first "mother" bugs that appear, before they have time to lay eggs, than to use poison. Of course, this applies only where the bugs are found in limited numbers.

Now, please remember this: Get right after whatever annoys you in the garden or in the poultry-house. Give them no quarter.

CHICKEN MITES—A CAUTION.

And this reminds me that I had a very nice coop made for a hen and chickens. It had wire-cloth doors so as to keep out rats and all other kinds of vermin. It had also a good roof and a door for the little chicks, a

place where the hen can sit on the bare ground or on the bare floor, as she thinks best. I loaned this coop to a neighbor, as it was not in use. In fact, I *assured* him he could have it "just as well as not." When it came home last fall, it was put away safely in the back cellar. When I got it out for the hen and chickens a few days ago it was almost literally alive with mites so minute that one could hardly see them with the naked eye unless it was out in the full rays of the sun. I mixed up some kerosene and mothballs and soaked the whole structure—every crack and crevice—and I *think* they are all dead. Now, is it not a little strange that these mites lived for six months or even more in a cold dark cellar, without any "visible means of support"? My impression is that they ate into the wood where there was no paint, and found sufficient sustenance on the decaying wood to keep them alive for six months, and possibly the mites might have been in a dormant condition, or perhaps the eggs laid last fall just hatched out.

Let me say in closing that it is a commendable thing to be ready and willing to lend things to your neighbors—especially those things you are not using yourself; but if you should lend a chicken-coop, look out that it does not have something inside when it comes back that it did *not* have when it went away.

HEALTH NOTES

ROBBING SICK PEOPLE; QUACK DOCTORS, ETC.

One of the best boys I ever had in my employ began helping me in the garden when he was scarcely a dozen years old. In fact, I put him in as a boy foreman when we were growing plants for sale, and I gave you his picture years ago where he had about a dozen other youngsters in charge. Four or five years ago, from lifting or something of the sort, he had a pain in his side. He consulted several of our home physicians, but there seemed to be a disagreement in regard to where the trouble was. Different doctors from time to time were so sure they could cure him that it took about all he could earn for several years to pay his doctor bills. About a year ago I found he was paying a woman for chiropractic treatment, and had paid her quite a little money. I advised him to go to the city and have an operation. But he dreaded an operation, and kept putting it off. As several of our readers have asked me in reference to chiropractic, and as Mrs. Root

had a stiff neck on account of catching cold, I went with her to the woman doctor for treatment. She said something was out of place in Mrs. Root's neck, and added that she could fix it all right. After she had manipulated for ten or fifteen minutes, and had received her dollar, Mrs. Root mentioned that she was going to the dentist's.

"Oh dear me!" said the women doctor, "the dentist will get your neck all out of place again, and after you have been there you will have to come back and have it done all over again." As that would cost another dollar, Mrs. Root and I thought we had invested enough in that line. It did not do Mrs. Root a particle of good; and when the woman mentioned that she had entirely cured an acquaintance of ours who had a "course of treatment," we took pains to inquire of said friend. She replied promptly that her son had paid the woman a lot of money for treatment, and it had done *no good* at all. Now for the moral of my little story.

Our friend Frank, whom I have told you about, was finally induced to go to Cleveland and have an "X-ray" examination. They said at once that one of his kidneys—the one on the side where he had been feeling pain for years, was decayed and practically gone. The kidney has just been removed by a surgical operation; but because the matter had been allowed to run so long the decaying kidney had affected the lungs, and the surgeon thinks his recovery doubtful, although he is going to do his best for him. Now, this woman doctor and other

doctors (most of them strangers) by assuring him they could manage his troubles, induced him to put it off until now it may be too late. This matter is brought to mind by the following clipping:

"Chiropractic," says *The Journal of the American Medical Association*, "is in no sense a profession. It is a scheme by which sharpers induce men, generally of little education and with a dwarfed sense of moral obligation, to learn the tricks of a disreputable trade—quackery."

From what experience I have had in the above, I should say the American Medical Association is exactly right about it.

TEMPERANCE

FRIEND DOOLITTLE TALKS TO US ABOUT THE SALOON BUSINESS.

Dear Brother Root :—Enclosed find something for your department of GLEANINGS. I hope you may see fit to have it appear before the many readers of GLEANINGS. I stand ready to back up every word of what I have written.

I am sorry about this Mexican-war scare coming up just at this time when the minds of the masses were turned as never before toward getting out from under the "yoke of Gambrinus." Now all eyes are turning away from the real issue in our country, by the great display of war headlines in our daily newspapers.

But we know this, that

When right is on the scaffold
And wrong upon the throne,
Behind the scene sits God himself,
Watching o'er his own.

And so we trust that out of all the wickedness of men, right will finally prevail.

Marietta, N. Y., June 6. G. M. DOOLITTLE.

Amen, Bro. D., for the verse you give us. There are many people, myself included, who need to keep calling to mind that "there is a God in Israel."

Below is the article referred to:

"UNCLE SAM" AT THE HEAD OF THE LIQUOR BUSINESS.

My dear Mr. Root :—In Our Homes, second paragraph, page 396, May 15, you say, "The liquor business has shown itself to be bigger than Uncle Sam." Does not this convey a wrong impression? The only logical conclusion the studious, earnest, careful thinker can come to in this liquor-business matter is, that the Government (Uncle Sam) is the liquor business, inasmuch as not a gallon of liquor can be legally sold in the United States only as Uncle Sam becomes the first party in the transaction. Only in the Government at Washington can be found the headquarters of this business. This seems plain to the one who has looked into the matter far enough to know the real facts, that every saloon under the jurisdiction of the United States is a government saloon. The proof of this assertion lies in the fact that no person can sell liquors in any of Uncle Sam's domains without a permit from the Government, only as he subjects himself to being arrested as a criminal. It is this permit that keeps the saloon and liquor business where it can ruin our boys and the homes of our fair land. All saloons are established by Uncle Sam, not by the men in the liquor business. And here has been the trouble with our temperance work

in the past. The Government is the head of this matter, and the approximate 250,000 saloons are the hairs growing from the head. In the past, our work has been "moral suasion" and the plucking out of a hair here and there, while the head was left. Consequently, after we had pulled out a hair in the shape of a saloon or a town, and called our place dry, we soon found that the head could grow another hair in the place of the one we had worked so hard to pluck, and the first we knew we were wet again. Even whole States which went dry were turned back to the wet again under the fostering care of the head, that the revenue from the wet might build our battle-ships, dig the Panama Canal, etc., this revenue from liquor and tobacco amounting to about one-half of our Government expenses, as given by the *Free Press*, and quoted in the first paragraph on page 663 of GLEANINGS for September 15, 1913. And it is with shamefacedness that it must be acknowledged that you and I, friend Root, have our share in that revenue, whether we wish to or not. And, sharing in this revenue, we in the past have condemned the men who "stood behind the bar" while, through our ballots, we have sanctioned and sustained the head which could have received no revenue only as it came from these keepers of our Government saloons. Let's get things right, and place the responsibility where it belongs, when we shall know how to work more intelligently than we have been doing in the past.

Borodino, N. Y.

G. M. DOOLITTLE.

THE LONDON TEMPERANCE HOSPITAL

We are glad to give place to the following:

Mr. A. I. Root :—In the temperance section of your issue for May 15 I notice an inquiry for the address of the London Temperance Hospital. It is located in Hampstead Road, in the northwest part of London. I well remember this famous institution, as I used to pass its doors every school day from the years 1879 to 1884, on my way to school. I was born about a mile from the hospital, and once had my young heart nearly burst at the sight of a little boy, who had been run over in the street, being driven in a carriage through the hospital gates. As the district is a poor one—that is, its inhabitants are not financially well fixed—this hospital must indeed prove an inestimable boon, for the services rendered there are, of course, quite free, as with the other London hospitals, and such like institutions scattered throughout my native land. Any correspondence addressed to the London Temperance Hospital, London, England, would assuredly reach that institution safely.

ALBERT G. NICHOLSON.

Rustburg, Va., May 22.